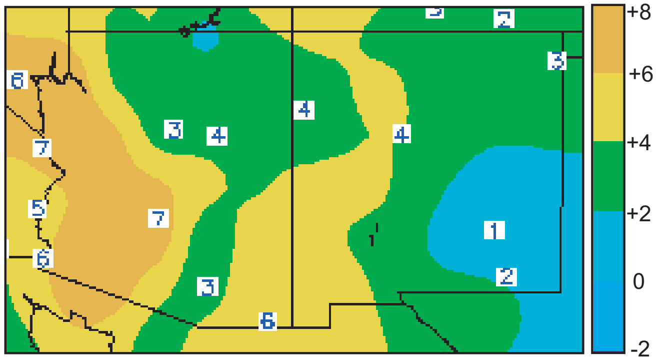
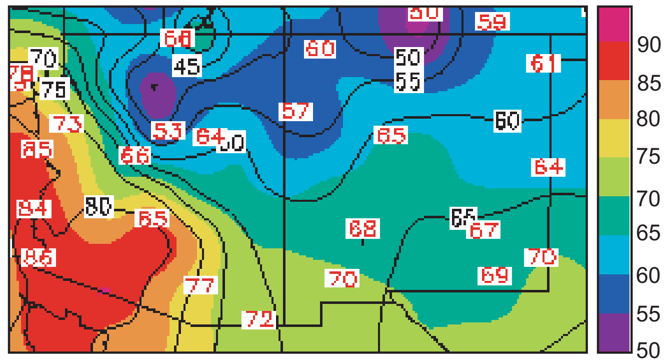
1. Recent Conditions: Temperature (up to 10/13/03) Sources: WRCC, HPRCC

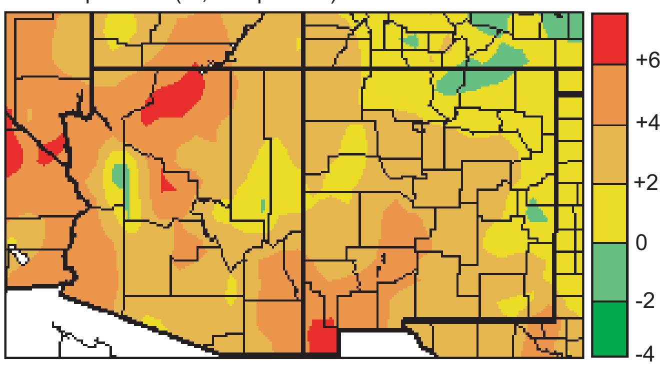
1a. Water year '03-'04 (through 10/13) departure from average temperature (°F).



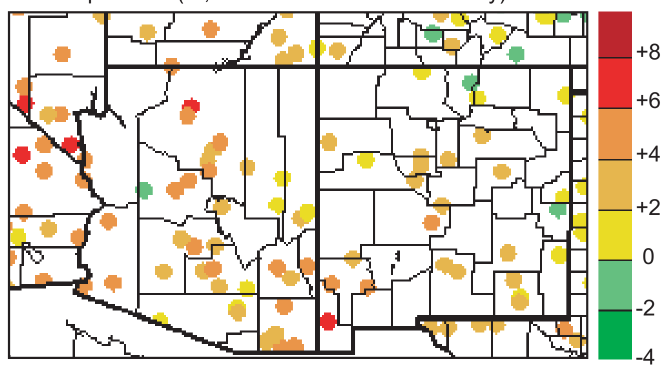
1b. Water year '03-'04 (through 10/13) average temperature (°F).



1c. Previous 30 days (9/14 - 10/13) departure from average temperature (°F, interpolated).



1d. Previous 30 days (9/14 - 10/13) departure from average temperature (°F, data collection locations only).



Highlights: The 2003-2004 water year is off to a very warm start in the Southwest (Figure 1b). Temperatures have been well above average to above average across our region (Figure 1a). Most affected during the past month have been northwestern, central and southeastern Arizona, as well as central and southwestern New Mexico (Figures 1c, 1d). During the past month, maximum temperatures have been more than 6°F above average in northern Arizona and New Mexico (not shown). Minimum temperatures have also been above average, especially in western Arizona and central New Mexico (not shown). The overall pattern of above-average annual temperatures in the Southwest, especially along the Arizona-California border, is consistent with the long-term trend across the region.

For these and other temperature maps, visit: http://www.wrcc.dri.edu/recent_climate.html and http://www.hprcc.unl.edu/products/current.html

For information on temperature and precipitation trends, visit: http://www.cpc.ncep.noaa.gov/trndtext.htm

Notes:

The Water Year begins on October 1 and ends on September 30 of the following year. Water Year is more commonly used in association with precipitation; water year temperature can be used to measure the temperatures associated with the hydrological activity during the water year.

Average refers to the arithmetic mean of annual data from 1971-2000. Data are in degrees Fahrenheit (°F).

Departure from average temperature is calculated by subtracting current data from the average. The result can be positive or negative.

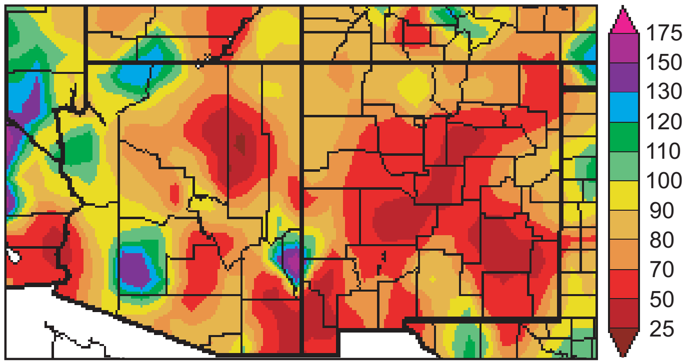
The continuous color maps (Figures 1a, 1b, 1c) are derived by taking measurements at individual meteorological stations and mathematically interpolating (estimating) values between known data points. The blue numbers in Figure 1a, the red numbers in Figure 1b, and the dots in Figure 1d show data values for individual stations.

Note: Interpolation procedures can cause aberrant values in data-sparse regions.

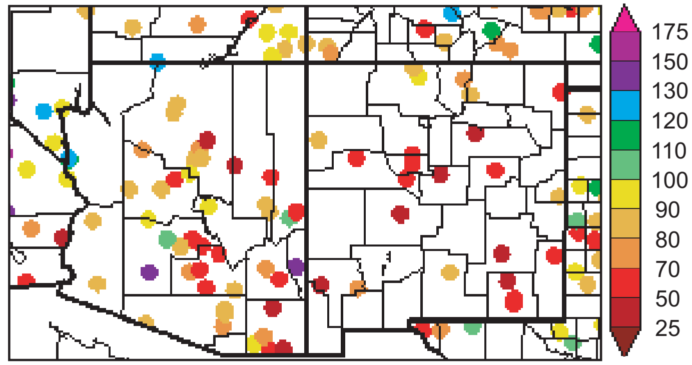
Figures 1c and 1d are experimental products from the High Plains Regional Climate Center (HPRCC).

2. Recent Conditions: Precipitation (up to 10/13/03) ♦ Source: High Plains Regional Climate Center

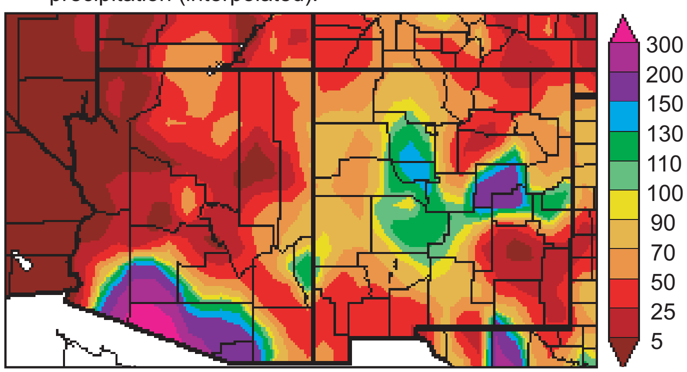
2a. Water year '03-'04 (through 10/13) percent of average precipitation (interpolated).



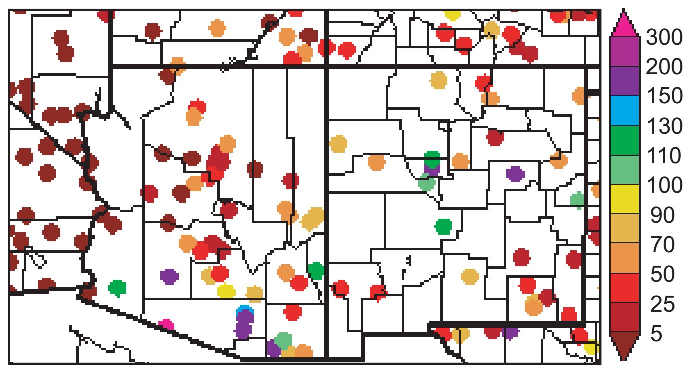
2b. Water year '03-'04 (through 10/13) percent of average precipitation (data collection locations only).



2c. Previous 30 days (9/14 - 10/13) percent of average precipitation (interpolated).



2d. Previous 30 days (9/14 - 10/13) percent of average precipitation (data collection locations only).



Highlights: Most of Arizona and New Mexico has received below-average precipitation since October 1, 2003 (Figures 2a and 2b). However, Tropical Storm Marty brought copious precipitation to parts of southern Arizona and central New Mexico during the first half of October (Figures 2c and 2d). Recent precipitation has not been sufficient to alleviate drought conditions in most of central and southwestern New Mexico. In this part of our region, spring and summer precipitation accounts for more than 50 percent of annual precipitation; according to the Albuquerque Forecast Office of the National Weather Service, March-September 2003 has been among the driest spring/summer periods on record for many southern and western New Mexico localities (not pictured).

For these and other precipitation maps, visit: http://www.hprcc.unl.edu/products/current.html

For National Climatic Data Center monthly precipitation and drought reports for Arizona, New Mexico, and the Southwest region, visit: http://lwf.ncdc.noaa.gov/oa/climate/research/2003/perspectives.html#monthly

Notes:

The Water Year begins on October 1 and ends on September 30 of the following year. As of October 1, 2003 we are in the 2004 water year. The water year is a more hydrologically sound measure of climate and hydrological activity than is the standard calendar year.

Average refers to the arithmetic mean of annual data from 1971-2000.

Percent of average precipitation is calculated by taking the ratio of current to average precipitation and multiplying by 100.

The continuous color maps (Figures 2a, 2c) are derived by taking measurements at individual meteorological stations and mathematically interpolating (estimating) values between known data points.

Note: Interpolation procedures can cause aberrant values in data-sparse regions.

The dots in Figures 2b and 2d show data values for individual meteorological stations.

These figures are experimental products from the High Plains Regional Climate Center (HPRCC).

3. Annual Precipitation Anomalies and Daily Event Totals ♦ Source: NOAA Climate Prediction Center

Notes: These graphs contrast how much precipitation actually has accumulated at each station over the past year (beginning in mid-October, 2002) with how much precipitation typically is received, based on a long-term average (1971-2000) of daily precipitation.

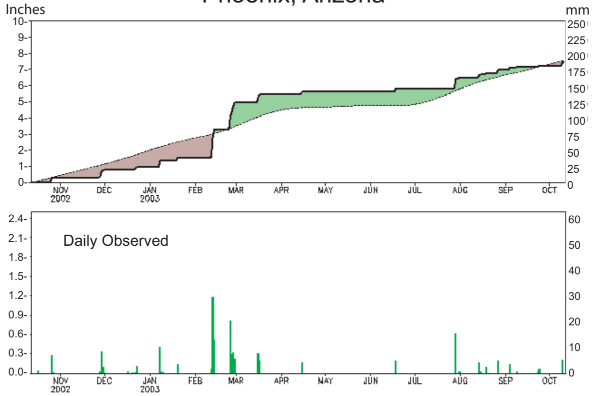
The top of each of the pairs of graphs shows average (dotted line) and actual (solid line) accumulated precipitation (i.e., each day's precipitation total is added to the previous day's total for a 365-day period). If accumulated precipitation is below the long-term average, the region between the long-term average and the actual precipitation is shaded grey, and if accumulated precipitation is above the long-term average, the region between the actual precipitation and the long-term average precipitation is shaded green.

The green bars at the bottom of each of the pairs of graphs show the daily precipitation amounts (in both inches and millimeters) for the past year. Thus, one can get a sense of how frequent and how intense individual precipitation *events* have been at the selected stations.

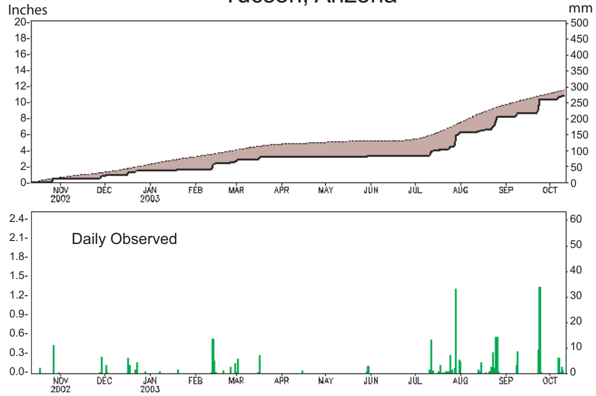
It is important to note that the scales for both the accumulated precipitation and the daily precipitation vary from station to station.

This type of graph is available for several other stations in Arizona and New Mexico as well as for many other places in the world. The graphs are updated daily by NOAA CPC at http://www.cpc.noaa.gov/products/global_monitoring/precipitation/global_precip_accum.html.

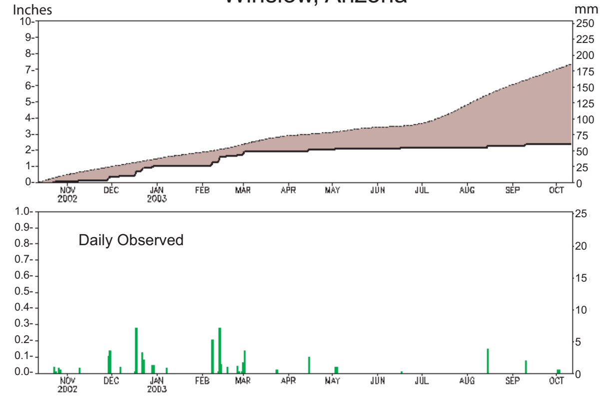
Phoenix, Arizona



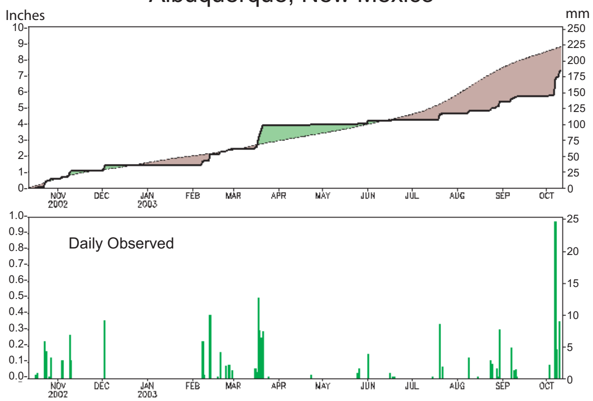
Tucson, Arizona



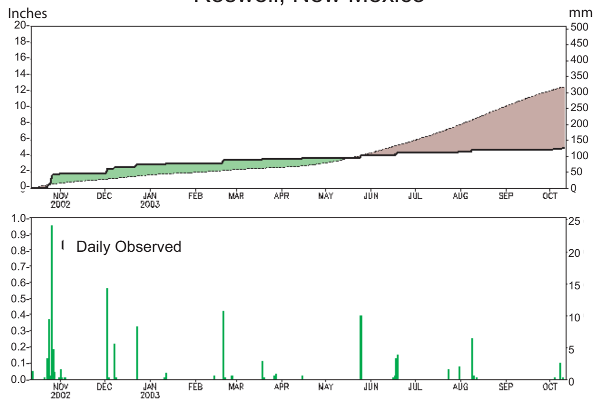
Winslow, Arizona



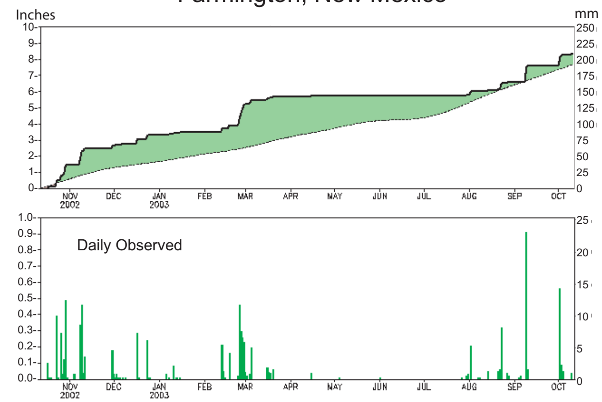
Albuquerque, New Mexico



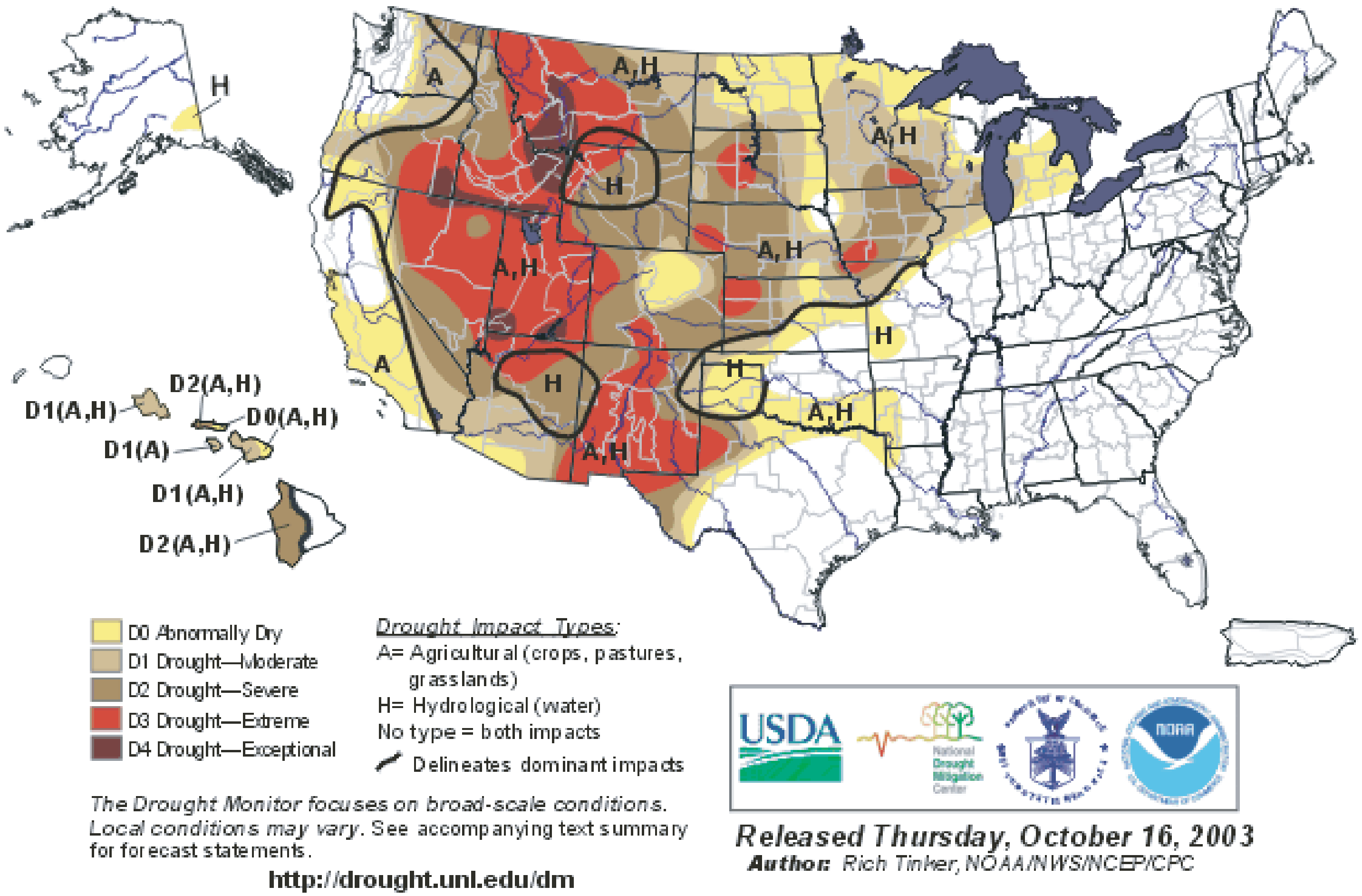
Roswell, New Mexico



Farmington, New Mexico



4. U.S. Drought Monitor (updated 10/16/03) ♦ Source: USDA, NDMC, NOAA



Notes:

The U.S. Drought Monitor is released weekly (every Thursday) and represents data collected through the previous Tuesday. This monitor was released on 10/16 and is based on data collected through 10/14.

The best way to monitor drought trends is to pay a weekly visit to the U.S. Drought Monitor website (see left and below).

The U.S. Drought Monitor maps are based on expert assessment of variables including (but not limited to) PDSI, soil moisture, stream flow, precipitation, and measures of vegetation stress, as well as reports of drought impacts.

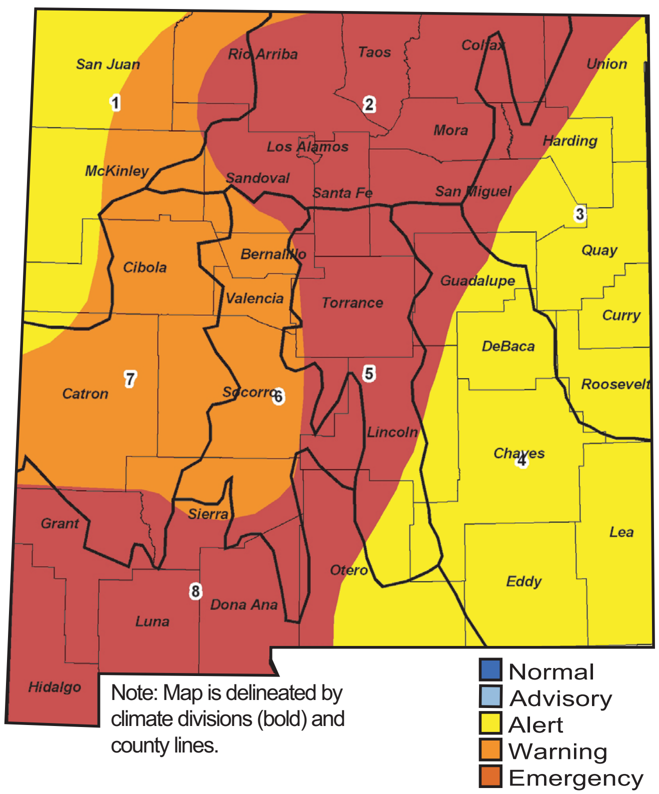
Highlights: Drought continues to persist in many parts of the southwestern United States. Over the past 30 days there have been short-term improvements in parts of northeast Arizona and in northwest New Mexico where areas in extreme drought (D3) were reclassified to indicate severe drought status (D2). Three tropical sources of moisture in late September and early October provided rain for much of southern Arizona and resulted in improved short-term drought status for southern Arizona. However, far less precipitation from these events fell north and east of Pima county, contributing to the persistence of extreme drought conditions (D3) in the eastern corner of southeast Arizona and much of central and southwestern New Mexico. Virtually all of Arizona and New Mexico experienced temperatures 2-8°F above the 1971-2000 average during the past 30 days. Despite recent rains in some parts of the region, most of Arizona and virtually all of New Mexico remains under severe to extreme hydrological drought conditions.

Animations of the current and past weekly drought monitor maps can be viewed at: http://www.drought.unl.edu/dm/monitor.html

5. Drought: Recent Drought Status for New Mexico (updated 09/19/03) Source: New Mexico NRCS

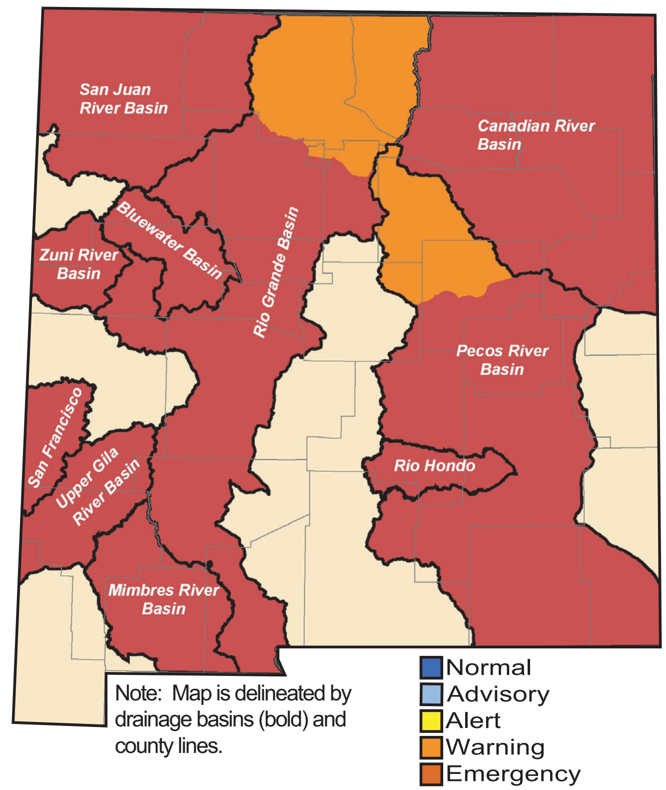
Meteorological Drought Map

Drought Status as of September 19, 2003



Hydrological Drought Map

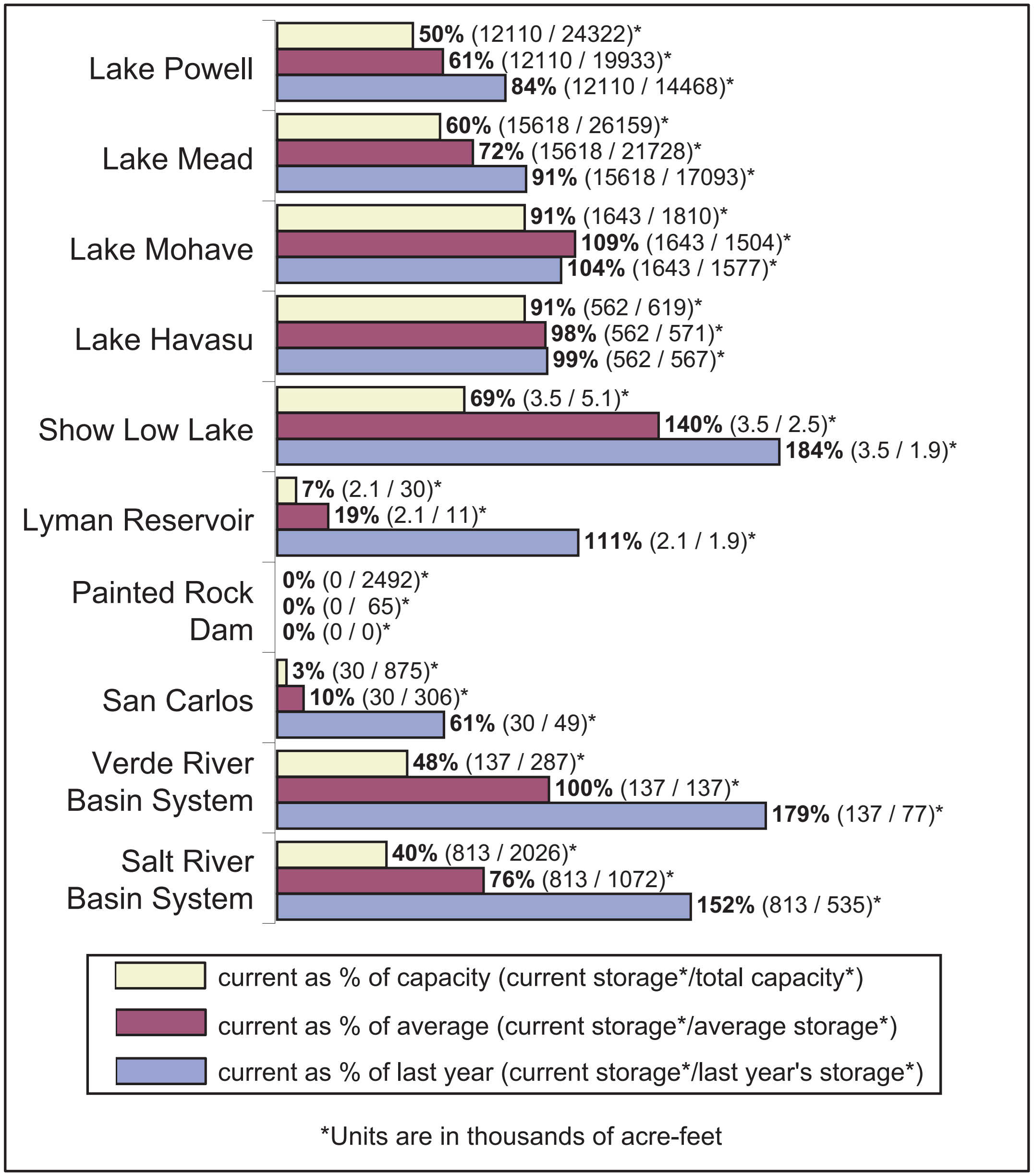
Drought Status as of September 19, 2003



Notes: Because our deadline is ahead of the release of the maps, **t**he drought maps above do not reflect information provided here,. According to the National Weather Service in Albuquerque, drought conditions have worsened over much of New Mexico during the last month. According to the USDA, 79 percent of range and pasture land is in poor to very poor condition (unchanged from last month), and in general soils are still suffering from multi-year moisture deficits over a large portion of New Mexico. The New Mexico drought monitoring committee has determined that virtually all river basins in the state remain in either *warning* or *emergency* status. Summer and early fall precipitation totals were generally below average across New Mexico. Some areas experienced exceptional dryness during summer and early fall. March-September precipitation totals for Animas (southwest New Mexico) and Artesia (southeast New Mexico) were the lowest on record (0.9 and 1.98 inches, respectively).

The New Mexico maps (http://www.nm.nrcs.usda.gov/snow/drought/drought.html) are currently produced monthly, but when near-normal conditions exist, they are updated quarterly. Information on Arizona drought can be found at: http://www.water.az.gov/gdtf/

6. Arizona Reservoir Levels (through the end of September 2003) Source: USDA NRCS



Notes: Reservoir reports are updated monthly and are provided by the National Water and Climate Center (NWCC) of the U.S. Department of Agriculture's Natural Resource Conservation Service (NRCS). Portions of the information provided in this figure can be accessed at the NRCS website:
http://www.wcc.nrcs.usda.gov/wsf/reservoir/resv_rpt.html

As of 10/16/03, Arizona's report had been updated through the end of September.

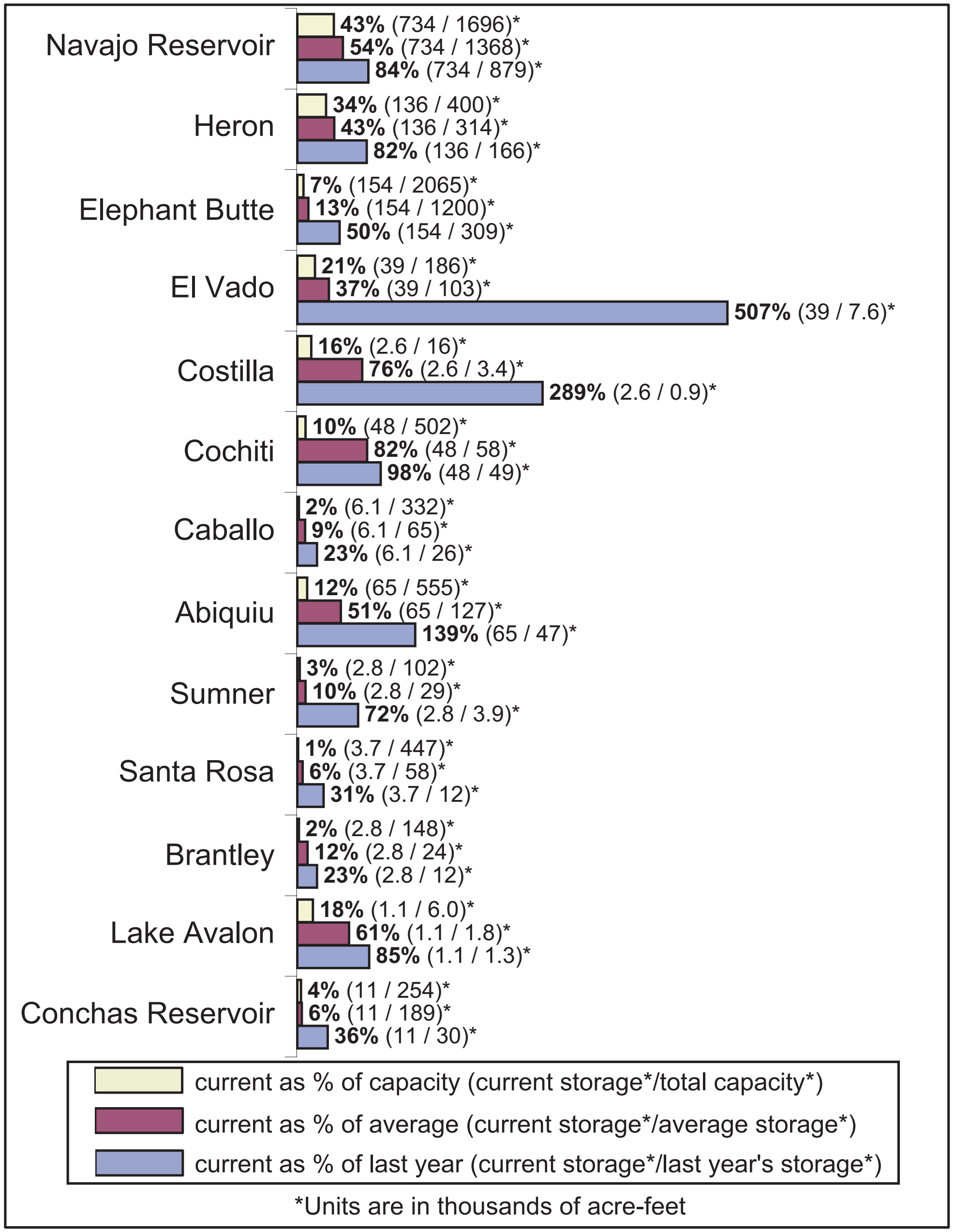
For additional information, contact Tom Pagano of the NWCC-NRCS-USDA (tpagano@wcc.nrcs.usda.gov; 503-414-3010) or Larry Martinez, NRCS, USDA, 3003 N. Central Ave, Suite 800, Phoenix, Arizona 85012-2945; 602-280-8841; Larry.Martinez@az.usda.gov)

Highlights: Through the month of September, net reservoir levels for the major reservoirs along the Colorado River continued to decrease. The Salt and Verde River Basin system levels have increased slightly from last month. No change in levels was indicated from last month for Show Low Lake, while Lyman Lake showed only a minimal drop in levels.

An *Arizona Daily Star* story (September 26, 2003), reports that the Salt River Project plans to pump nearly 100 billion gallons of water this year as a result of the ongoing drought and increasing demand. The amount is three to five times the usual amount.

On October 16th, Department of Interior Secretary Gale Norton signed an agreement that allows for the return of water deliveries to the Imperial Valley (California), as the farmers in the region have agreed to sell their water to San Diego for market price. The agreement settles a dispute regarding California's overuse of Colorado River water.

7. New Mexico Reservoir Levels (through the end of September 2003) Source: USDA NRCS



Notes: Reservoir reports are updated monthly and are provided by the National Water and Climate Center (NWCC) of the U.S. Department of Agriculture's Natural Resource Conservation Service (NRCS). Reports can be accessed at their website:
(http://www.wcc.nrcs.usda.gov/wsf/reservoir/resv_rpt.html).

As of 10/16/03, New Mexico's report had been updated through the end of September.

For additional information, contact Tom Pagano of the NWCC-NRCS-USDA (tpagano@wcc.nrcs.usda.gov; 503-414-3010) or Dan Murray, NRCS, USDA, 6200 Jefferson NE, Albuquerque, NM 87109; 505-761-4436; Dan.Murray@nm.usda.gov)

Highlights: During the month of September levels in all but one of New Mexico's reservoirs continued to decline. El Vado reservoir experienced a slight increase.

Persistent drought across New Mexico has resulted in a wide variety of water-related impacts, and has forced New Mexicans to embrace creative solutions to water supply issues.

The city of Alamogordo has lined its reservoirs and covered them in order to reduce losses to evaporation, saving about 500,000 gallons of water per day. (*Albuquerque Journal,* October 15, 2003).

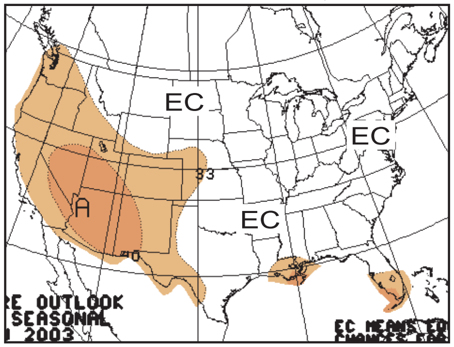
The city of Santa Fe and the Las Campanas luxury estates development reached an agreement that calls for Las Campanas to reduce its use of potable groundwater in exchange for city-provided effluent for golf course irrigation. (*Albuquerque Journal,* October 1, 2003).

New Mexico has taken aggressive measures to remove a water guzzling non-native tree, the salt cedar (tamarisk). Herbicides, salt cedar leaf beetles, goats, and bulldozers are among the agents being used in the eradication effort. Scientists, however, disagree about the water savings that might be gained. (*Albuquerque Journal,* October 12, 2003).

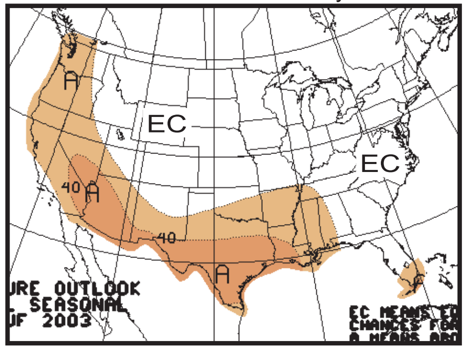
8. Temperature: Multi-season Outlooks ♦ Source: NOAA Climate Prediction Center

Overlapping 3-month long-lead temperature forecasts (released 10/16/03).

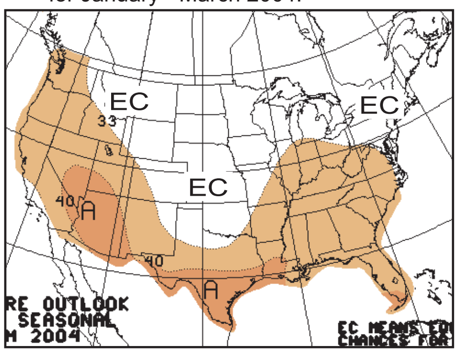
8a. Long-lead national temperature forecast for November 2003 - January 2004.



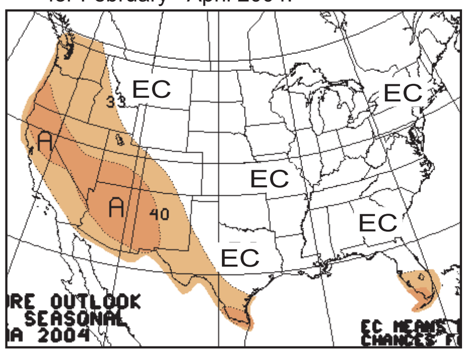
8b. Long-lead national temperature forecast for December 2003 - February 2004.



8c. Long-lead national temperature forecast for January - March 2004.



8d. Long-lead national temperature forecast for February - April 2004.



Percent Likelihood of Above and Below Average Temperatures*

> 40%

33% - 40%

A = Above

*EC indicates no forecasted anomalies due to lack of model skill.

Highlights: The NOAA-CPC temperature outlooks for November 2003 through April 2004 forecast increased probabilities of above-average temperatures for most of the Southwest (Figures 8a-d). The maximum likelihood of above-average temperatures (greater than 40%) is centered over Arizona for late fall and winter. The CPC predictions are based chiefly on long-term temperature trends for the region, indications from statistical models, and an expectation that El Niño-Southern Oscillation (ENSO)-neutral conditions will continue in the equatorial Pacific Ocean. The lack of extreme ENSO conditions in the equatorial Pacific Ocean increases forecast uncertainty; therefore, these forecasts emphasize regions with strong trends. The International Research Institute for Climate Prediction (IRI) temperature forecasts (*not pictured)* also indicate increased probabilities of above-average temperature for the southwestern United States, including a 45% likelihood of above-average temperatures centered over southwestern Arizona and western Mexico during the entire November-April forecast period. IRI temperature forecasts for November-April indicate a 40% likelihood of above-average temperatures over the rest of our region.

For more information on CPC forecasts, visit:
http://www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/churchill.html
Please note that this website has many graphics and may load slowly on your computer.

For IRI forecasts, visit: http://iri.columbia.edu/climate/forecast/net_asmt/

Notes:

The NOAA CPC (National Oceanic and Atmospheric Administration Climate Prediction Center) outlooks predict the likelihood (chance) of above-average, average, and below-average temperature, but **not** the magnitude of such variation. The numbers on the maps **do not** refer to degrees of temperature.

In a situation where there is no forecast skill, one might look at *average* conditions in order to get an idea of what might happen. Using past climate as a guide to average conditions and dividing the past record into 3 categories, there is a 33.3% chance of above-average, a 33.3% chance of average, and a 33.3% chance of below-average temperature.

Thus, using the NOAA CPC likelihood forecast, in areas with light brown shading there is a 33.3-40.0% chance of above-average, a 33.3% chance of average, and a 26.7-33.3% chance of below-average temperature.

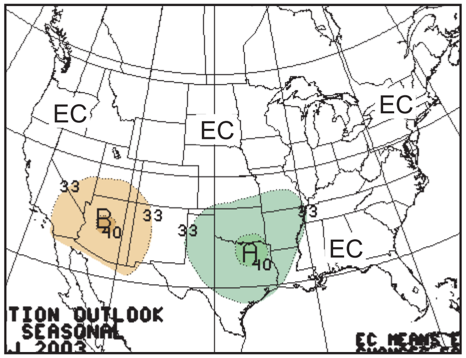
The term *average* refers to the 1971-2000 average. This practice is standard in the field of climatology.

Equal Chances (EC) indicates areas where reliability (i.e., the 'skill') of the forecast is poor and no anomaly prediction is offered.

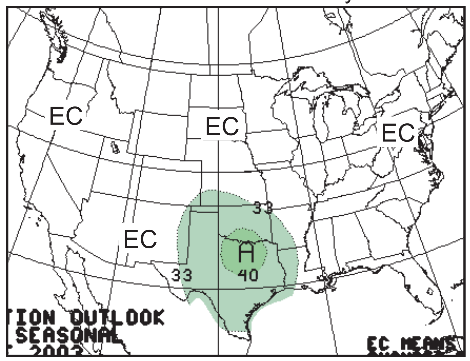
9. Precipitation: Multi-season Outlooks ♦ Source: NOAA Climate Prediction Center

Overlapping 3-month long-lead precipitation forcasts (released 10/16/03).

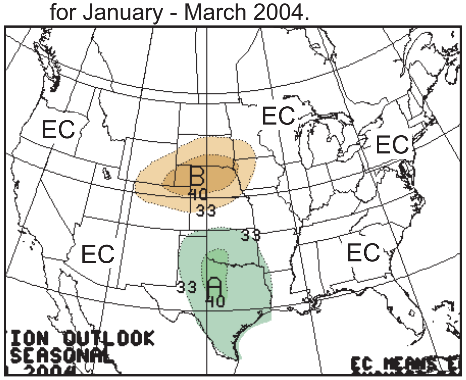
9a. Long-lead U.S. precipitation forecast for November 2003 - January 2004.



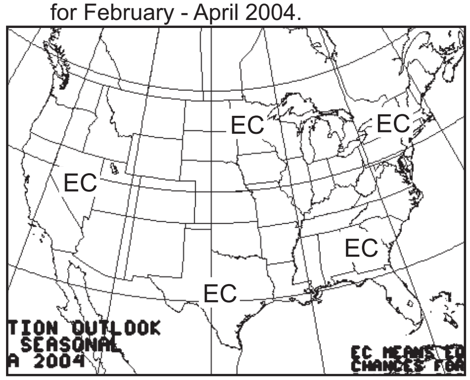
9b. Long-lead U.S. precipitation forecast for December 2003 - February 2004.



9c. Long-lead U.S. precipitation forecast for January - March 2004.



9d. Long-lead U.S. precipitation forecast for February - April 2004.



Percent Likelihood of Above or Below Average Precipitation*

A = Above: > 40%; 33% - 40%

B = Below: 33% - 40%; > 40%

*EC indicates no forecasted anomalies due to lack of model skill.

Highlights: NOAA-CPC forecasts for November 2003-April 2004 indicate slightly increased probabilities of below-average precipitation for Arizona and western New Mexico for November-January; CPC forecasters have reserved judgment regarding precipitation in the Southwest for the winter months. These forecasts are based chiefly on insights from statistical models. The lack of extreme El Niño-Southern Oscillation conditions in the equatorial Pacific Ocean reduces the overall confidence in precipitation forecasts. The November 2003-April 2004 IRI precipitation forecasts (*not pictured)* also indicate slightly increased probabilities (40%) of below-average precipitation for the Southwest, centered over Arizona for November-January. NOAA-Climate Diagnostic Center forecaster Klaus Wolter produces an experimental forecast for the Four Corners states (*not pictured*), which calls for a greater than 43% chance of below-average precipitation across all of Arizona and most of New Mexico this winter (January-March). NOAA CPC climate outlooks are released on Thursday, between the 15th and 21st of each month.
For more information, visit:
http://www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/churchill.html
Please note that this website has many graphics and may load slowly on your computer.
For more information about IRI experimental forecasts, visit: http://iri.columbia.edu/climate/forecast/net_asmt/

Notes:
The NOAA CPC (National Oceanic and Atmospheric Administration Climate Prediction Center) outlooks predict the likelihood (chance) of above-average, average, and below-average precipitation, but **not** the magnitude of such variation. The numbers on the maps **do not** refer to inches of precipitation.

In a situation where there is no forecast skill, one might look at *average* conditions in order to get an idea of what might happen. Using past climate as a guide to average conditions and dividing the past record into 3 categories, there is a 33.3% chance of above-average, a 33.3% chance of average, and a 33.3% chance of below-average precipitation.

Thus, using the NOAA CPC likelihood forecast, in areas with light green shading there is a 33.3-40.0% chance of above-average, a 33.3% chance of average, and a 26.7-33.3% chance of below-average precipitation.

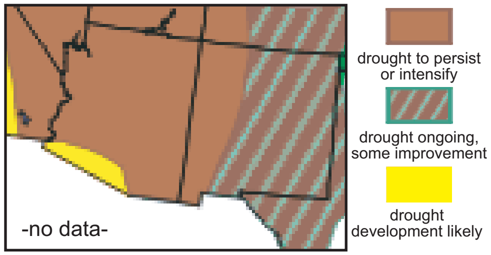
The term *average* refers to the 1971-2000 average. This practice is standard in the field of climatology.

Equal Chances (EC) indicates areas where reliability (i.e., the 'skill') of the forecast is poor and no anomaly prediction is offered.

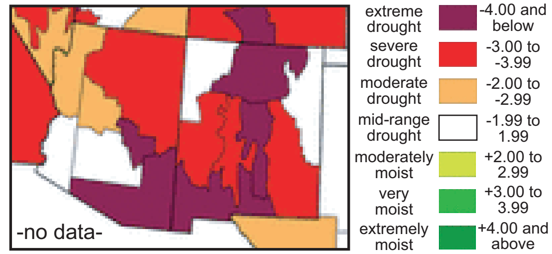
10. Drought: Seasonal Drought and PHDI Outlook Maps ♦ Sources: NOAA-CPC, NCDC

Notes:
The delineated areas in the Seasonal Drought Outlook (Fig. 10a) are defined subjectively and are based on expert assessment of numerous indicators, including outputs of short- and long-term forecasting models.

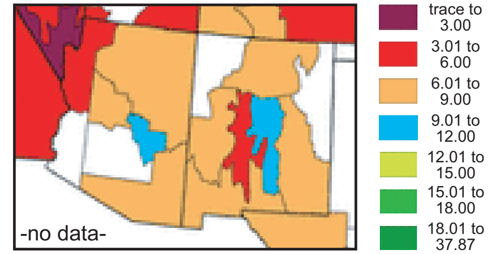
10a. Seasonal drought outlook through January 2004 (accessed 10/16).



10b. September 2003 PHDI conditions (accessed 10/16).



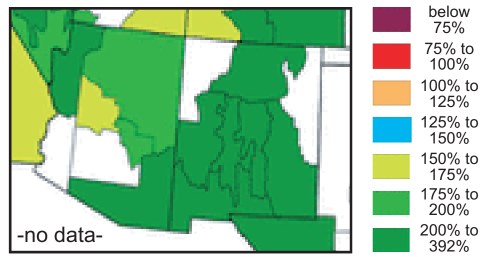
10c. Precipitation (in.) required to end current drought conditions in three months.



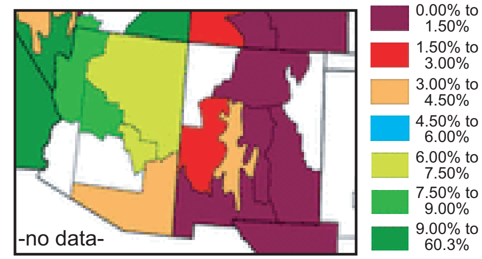
Figures 10b-e are based on the Palmer Hydrological Drought Index (PHDI), which reflects long-term precipitation deficits. PHDI is a measure of reservoir and groundwater level impacts, which take a relatively long time to develop and to recover from drought. Figure 10b shows the current PHDI status for Arizona and New Mexico.

Figure 10c shows the amount of precipitation, in inches, needed over the next three months to change a region's PHDI status to -0.5 or greater—in other words, to end the drought. **Regions shown in white have a current PHDI value greater than –2.0 (e.g., in Figure 10b - e, these regions are not in hydrological drought).**

10d. Percent of average precipitation required to end current drought conditions in three months.



10e. Probability of receiving precipitation required to end current drought conditions in three months.



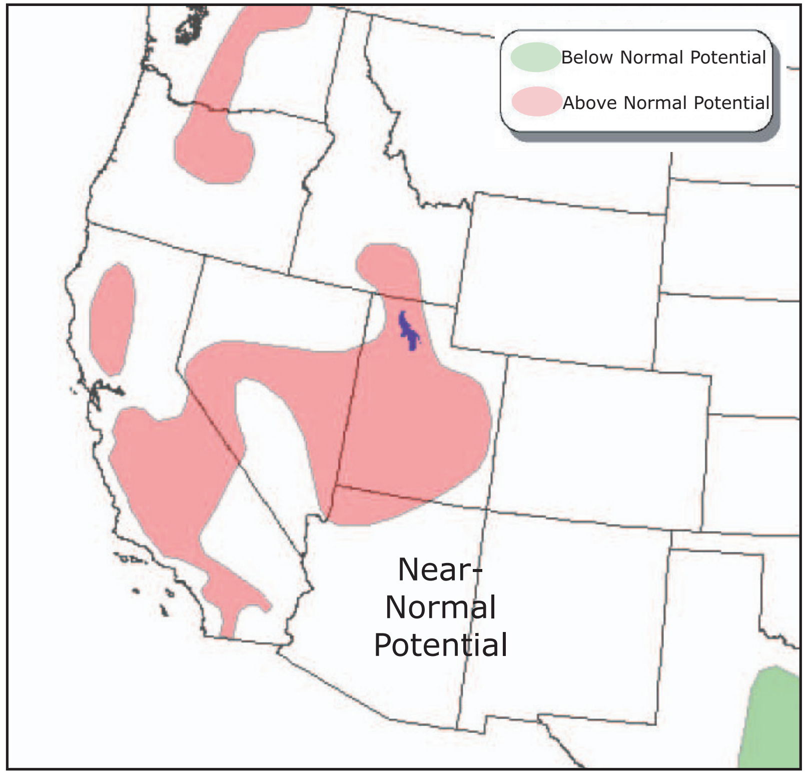
The season in which the precipitation falls greatly influences the amount of precipitation needed to end a drought. For example, during a typically wet season more precipitation may be required to end a drought than during a typically dry season. Also, because soil moisture conditions generally are lower in the dry seasons, the precipitation needed to bring soil conditions back to normal may be less than that required to return soil moisture conditions to normal during a generally wetter season. Figure 10d shows the percent of average precipitation needed to end drought conditions in three months, based on regional precipitation records from 1961–1990. A region that typically experiences extreme precipitation events during the summer, for example, may be more likely to receive enough rain to end a drought than a region that typically is dry during the same season. The seasons with the greatest probability of receiving substantially more precipitation than average are those subject to more extreme precipitation events (such as hurricane-related rainfall), not necessarily those seasons that normally receive the greatest average amounts of precipitation. Figure 10e shows the probability, based on historical precipitation patterns, of regions in Arizona and New Mexico receiving enough precipitation in the next three months to end the drought. Note that these probabilities **do not** take into account atmospheric and climatic variability (such as El Niño-Southern Oscillation), which also influence seasonal precipitation probabilities in the Southwest.

Highlights: Most of Arizona and New Mexico is expected to remain in severe or extreme hydrological drought status. Note the exceedingly high percent of average precipitation required to end the current drought (Figure 10d) and exceedingly low probability of receiving that precipitation (Figure 10e).

For more information, visit: http://www.drought.noaa.gov/ —and— http://www.ncdc.noaa.gov/oa/climate/research/drought/drought.html

11. National Wildland Fire Outlook ♦ Source: National Interagency Coordination Center

11. Monthly Wildfire Outlook (valid October 1 - 31)



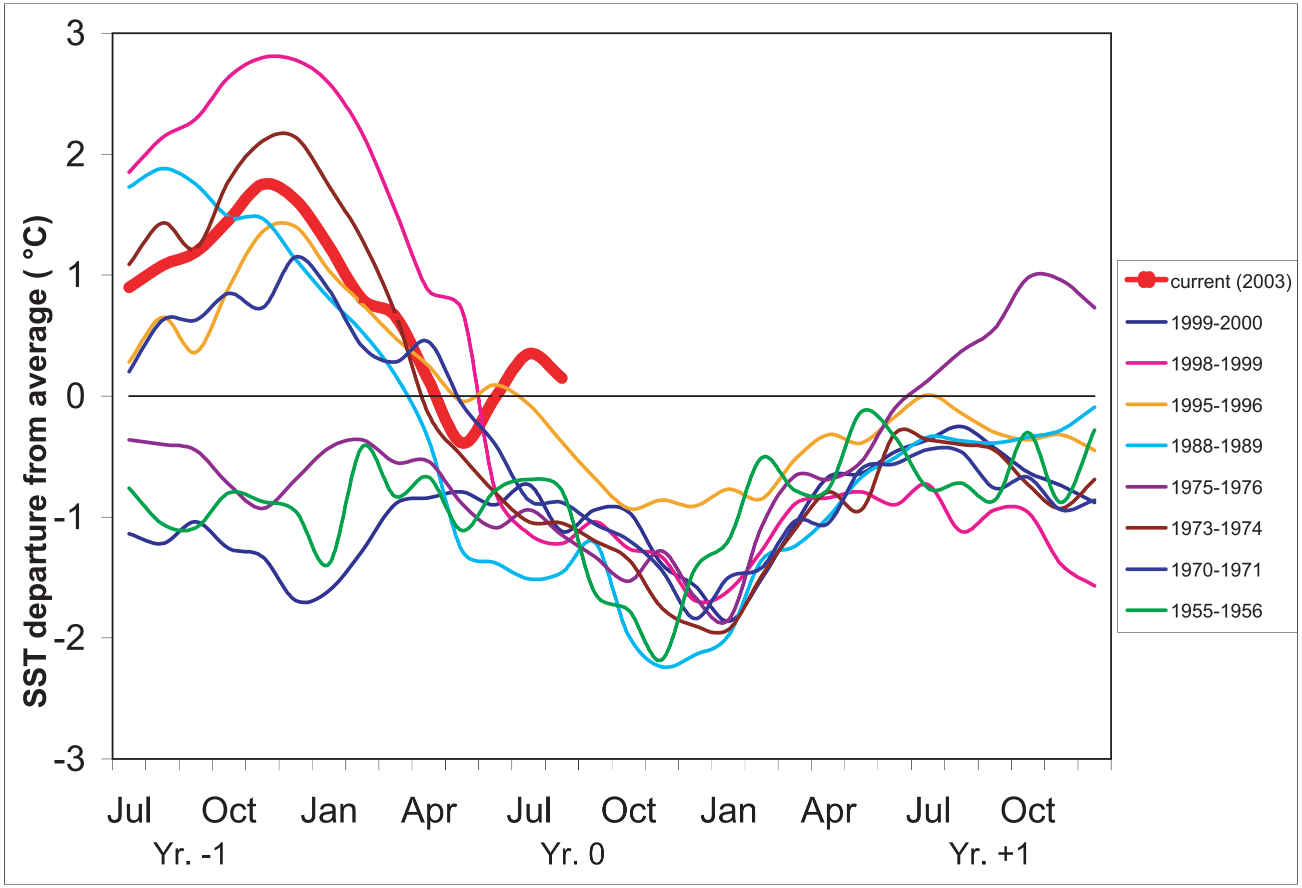
Notes: The National Interagency Coordination Center (NICC) at the National Interagency Fire Center (NIFC) produces seasonal and monthly (Figure 11a) wildland fire outlooks. These forecasts consider climate forecasts and surface-fuels conditions in order to assess fire potential. They are subjective assessments, based on synthesis of regional fire danger outlooks.

Highlights: The October 1-31, 2003 NICC wildfire outlook is for near-normal fire potential for most of Arizona and New Mexico. Above normal fire potential is forecast for the Arizona Strip and most of Utah. Observed large (1000-hour) fuel moisture readings for the Southwest (*not pictured*) indicate relatively low fuel moisture in northwestern Arizona and southwestern New Mexico. In addition, as of October 23, 2003, a daily snapshot of the National Fire Danger Rating System (NFDRS) fire danger rating indicates that fire danger in northwestern Arizona and central and eastern New Mexico (*not pictured*) is very high, whereas fire danger in southeastern Arizona is moderate-to-high.

For more detailed discussions, visit the National Wildland Fire Outlook web page: http://www.nifc.gov/news/nicc.html
and the Southwest Area Wildland Fire Operations (SWCC) web page: http://www.fs.fed.us/r3/fire/
For an array of climate and fire assessment tools, visit the Desert Research Institute program for Climate, Ecosystem, and Fire Applications (CEFA) web page:
http://cefa.dri.edu/Assessment_Products/assess_index.htm

12. Tropical Pacific Sea Surface Temperature Forecast ♦ Sources: NOAA-CPC, IRI

12. Current (red) and past La Niña event sea surface temperature anomalies (°C) for the Niño 3.4 monitoring region of the equatorial Pacific ocean.



Notes: The graph (Figure 12) shows sea-surface temperature (SST) departures from the long-term average for the Niño 3.4 region in the central-eastern equatorial Pacific Ocean. SSTs in this region are a sensitive indicator of ENSO conditions.

Each line on the graph represents SST departures for previous La Niña events, beginning with the year before the event began (Yr. –1), continuing through the event year (Yr. 0), and into the decay of the event during the subsequent year (Yr. +1).

The most recent SST departures are plotted as a thick red line. The magnitude of the SST departure, its timing during the seasonal cycle, and its exact location in the equatorial Pacific Ocean are some of the factors that determine the degree of impacts experienced in the Southwest.

Highlights: Sea-surface temperatures (SSTs) are near neutral to slightly above average across much of the tropical Pacific Ocean, making the development of a La Niña episode unlikely. The International Research Institute for Climate Prediction (IRI) estimates that there is a high likelihood (65-80% chance) that ENSO-neutral conditions will persist through the winter of 2003. The IRI notes that the likelihood of El Niño or La Niña developing during the fall or winter is far below the historical average. NOAA's Climate Prediction Center (CPC) notes that current conditions are similar to weak El Niño conditions; however, atmospheric conditions do not currently favor the development of an El Niño event. As of September 24, 2003, Klaus Wolter of the NOAA Climate Diagnostic Center says that while ENSO-neutral conditions are most likely for the next several months, he "would not be surprised to see El Niño return by next spring." Near-neutral conditions in the equatorial and tropical Pacific Ocean introduce considerable uncertainty with regard to long-range climate forecasts.

For a technical discussion of current El Niño conditions, visit: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/

For more information about El Niño and to access the graphics found on this page, visit: http://iri.columbia.edu/climate/ENSO/

13. Precipitation Verification: July – September 2003 ♦ Source: NOAA Climate Prediction Center

Figure 13a. Long-lead U.S.precipitation forecast for July - September 2003

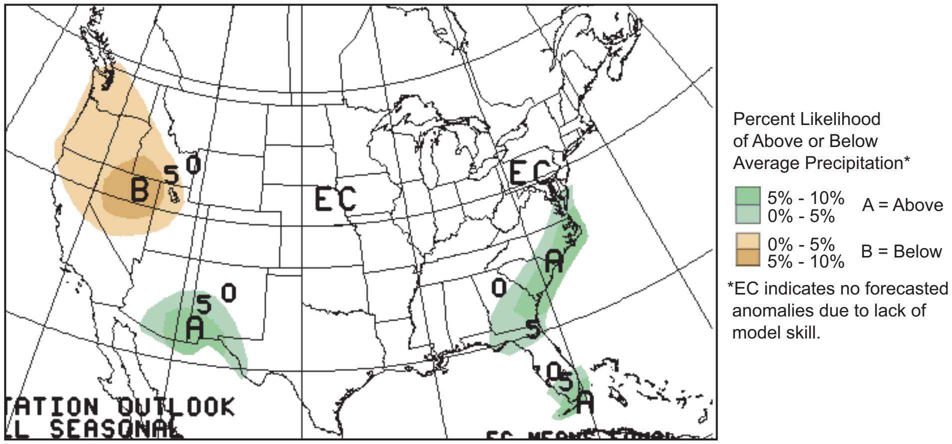


Figure 13b. Percent of average precipitation observed between July - September 2003

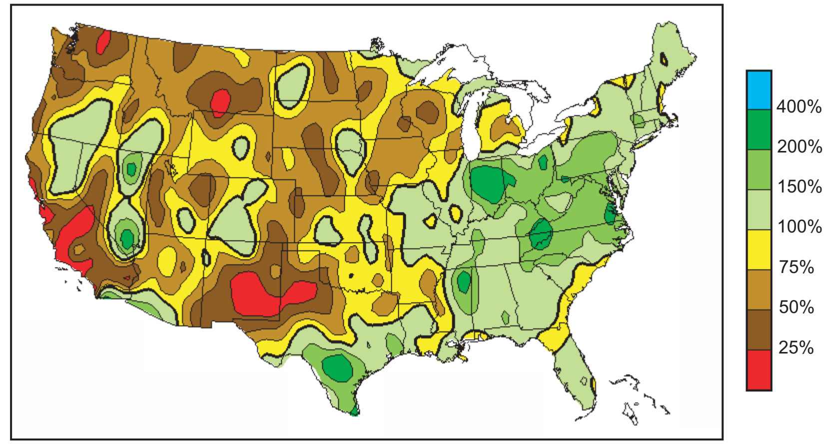
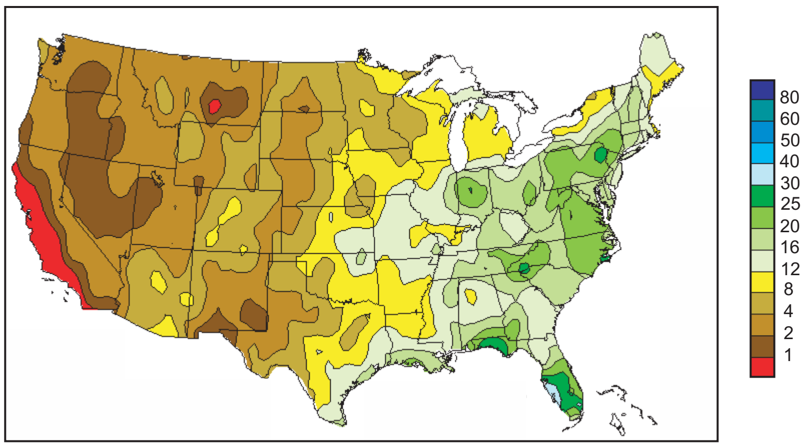


Figure 13c. Observed precipitation for July - September 2003 (inches).



Highlights: The NOAA-CPC July-September 2003 precipitation outlook forecast slightly increased probabilities of above-average precipitation for the south-central part of our region. Only southwestern Arizona received above-average precipitation during the forecast period. Summer precipitation in our region is notoriously difficult to forecast. NOAA-CPC precipitation forecasts for Washington and northwestern Oregon, as well as the mid-Atlantic states were mostly successful.

Notes: Figure 13a shows the NOAA Climate Prediction Center (CPC) precipitation outlook for the months July – September 2003. This forecast was made in June 2003.

The July-September 2003 NOAA CPC outlook predicts the “excess” likelihood (chance) of above-average, average, and below-average precipitation, but **not** the magnitude of such variation. The numbers on the maps **do not** refer to inches of precipitation.

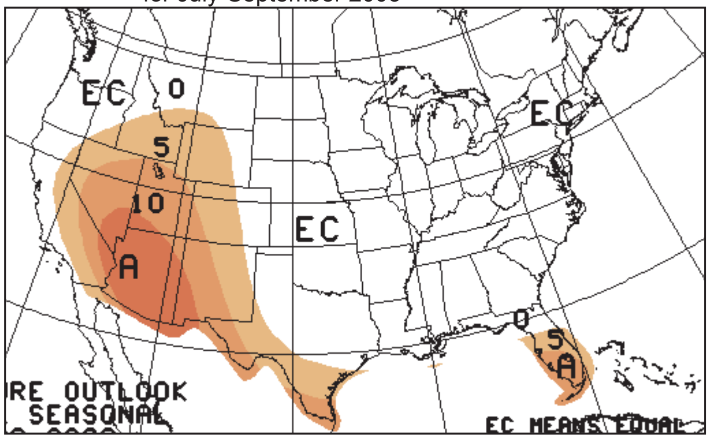
Using past climate as a guide to average conditions and dividing the past record into 3 categories, there is a 33.3% chance of above-average, a 33.3% chance of average, and a 33.3% chance of below-average precipitation. Thus, using the NOAA CPC likelihood forecast, in areas with light green shading there is a 33.3-38.3% chance of above-average, a 33.3% chance of average, and a 28.3-33.3% chance of below-average precipitation. Equal Chances (EC) indicates areas where reliability (i.e., the *skill*) of the forecast is poor and no anomaly prediction is offered.

Figure 13b shows the observed percent of average precipitation for July – September 2003. Figure 13c shows the total rainfall observed between July – September 2003 in inches.

In all of the figures on this page, the term *average* refers to the 1971-2000 average. This practice is standard in the field of climatology.

14. Temperature Verification: July – September 2003 ♦ Source: NOAA Climate Prediction Center

Figure 14a: Long-lead U.S. temperature forecast for July-September 2003



Percent Likelihood of Above and Below Average Temperatures*

10% - 20%
5% - 10%   A = Above
0% - 5%

*EC indicates no forecasted anomalies due to lack of model skill.

Figure 14b. Average Temperature (in °F) for July - September 2003

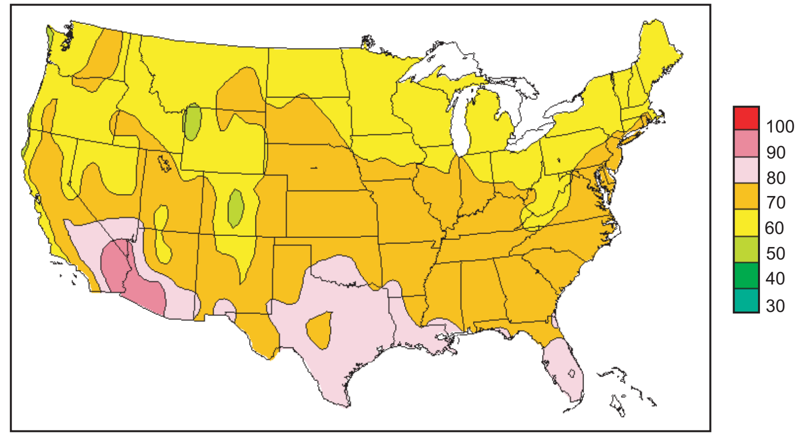
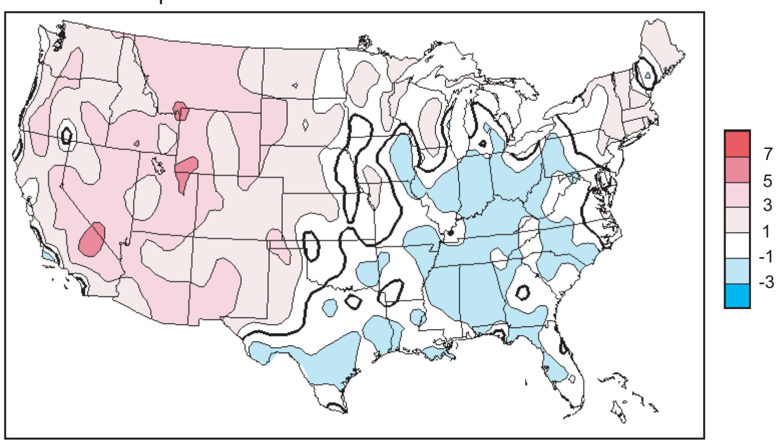


Figure 14c: Average Temperature Departure (in °F) for July - September 2003



Highlights: The NOAA-CPC July-September 2003 temperature outlook forecast increased probabilities of above-average temperature for our region, with the greatest probabilities stretching from northwestern Arizona to southwestern New Mexico. In fact, all of our region displayed above-average temperatures during the forecast period. Most of the region with the highest forecast probabilities did experience temperatures 3-5 °F above average. NOAA-CPC forecasts for southern Florida were not successful.

Notes: Figure 14a shows the NOAA Climate Prediction Center (CPC) temperature outlook for the months July – September 2003. This forecast was made in June 2003.

The July-September 2003 NOAA CPC outlook predicts the “excess” likelihood (chance) of above-average, average, and below-average precipitation, but **not** the magnitude of such variation. The numbers on the maps **do not** refer to inches of precipitation.

Using past climate as a guide to average conditions and dividing the past record into 3 categories, there is a 33.3% chance of above-average, a 33.3% chance of average, and a 33.3% chance of below-average temperature. Thus, using the NOAA CPC likelihood forecast, in areas with light brown shading there is a 33.3-38.3% chance of above-average, a 33.3% chance of average, and a 28.3-33.3% chance of below-average precipitation. Equal Chances (EC) indicates areas where reliability (i.e., the *skill*) of the forecast is poor and no anomaly prediction is offered.

Figure 14b shows the observed departure of temperature (°F) from the average for July – September 2003. Figure 14c shows the observed average temperature between July – September 2003 (°F).

In all of the figures on this page, the term *average* refers to the 1971-2000 average. This practice is standard in the field of climatology.