CLIMAS

Southwest Climate Outlook

Monthly Climate Packet
August 2003

Climate Assessment for the Southwest
Institute for the Study of Planet Earth
University of Arizona
PO Box 210156
Tucson, Arizona 85721-0156
(520) 792-8712

TABLE OF CONTENTS

Section A

BACKGROUND

CLIMAS
Southwest Climate Outlook
August 2003
THE UNIVERSITY OF ARIZONA®

Monthly Climate Summary

Highlights

Hydrological Drought – Hydrological drought continues to be a major concern for the Southwest.

- Most New Mexico river basins remain in emergency drought status, and reservoir storage in the Rio Grande and Pecos Basins is likely to decline by the end of summer.
- Groundwater levels in many parts of New Mexico continue to decline.
- Current storage has continued to decrease in most Arizona reservoirs.

Precipitation – Summer monsoon rainfall has displayed great geographic variation across the Southwest. Most of New Mexico has had a very dry summer, as has southeastern Arizona. Parts of western and north-central Arizona have received average to above-average precipitation this summer.

Fire – Fire danger is above average only across south-central and eastern New Mexico. Monsoon rains have eased fire danger over most of our region, but in some areas of New Mexico fuel moisture remains at historically dry levels.

Range Conditions – New Mexico and Arizona continue to have exceedingly poor range and pasture conditions (relative to state averages) in the United States.

Temperature Forecasts – Seasonal temperature forecasts indicate increased probabilities of above-average temperatures across Arizona and most of New Mexico through the winter months. Seasonal precipitation forecasts indicate slightly decreased probabilities of below-average precipitation across Arizona and western New Mexico this fall.

ENSO – Equatorial Pacific sea surface temperatures have increased slightly, but, overall, ENSO conditions are neutral, and are expected to remain neutral for the rest of 2003.

The Bottom Line

Hydrological drought will continue in the Southwest during the next several months, and New Mexico water supplies will continue to decline at least until the end of the summer.

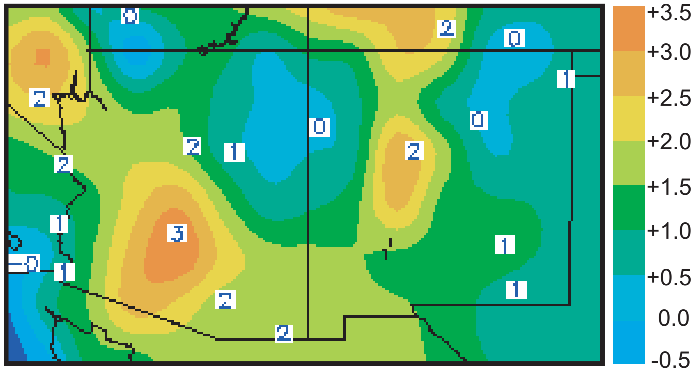
- The **most likely scenario** is that the remainder of our summer rainfall will be below average over most of the region, with some areas of above-average rainfall in parts of Arizona and in northeastern New Mexico. Summer rainfall tends to have minimal impact on reservoirs. Neutral equatorial Pacific Ocean temperatures are expected to persist beyond the summer. The autumn tropical storm season will be a wildcard.
- The **worst case scenario** is that summer monsoon precipitation tapers off rapidly and autumn conditions are abnormally hot and dry across the region. The aforementioned scenario might result in renewed fire danger, high evaporation rates, and decreased reservoir and groundwater levels.
- The **best case scenario** is that El Niño rebounds this fall and winter, providing increased chances of above-average precipitation. Sea-surface temperature trends are not yet clear enough, however, to assess the likelihood of this scenario.

Section B

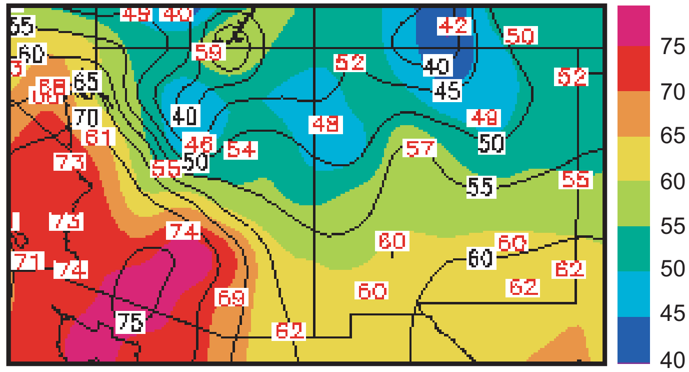
RECENT CONDITIONS

1. Recent Conditions: Temperature (up to 08/20/03) Sources: WRCC, HPRCC

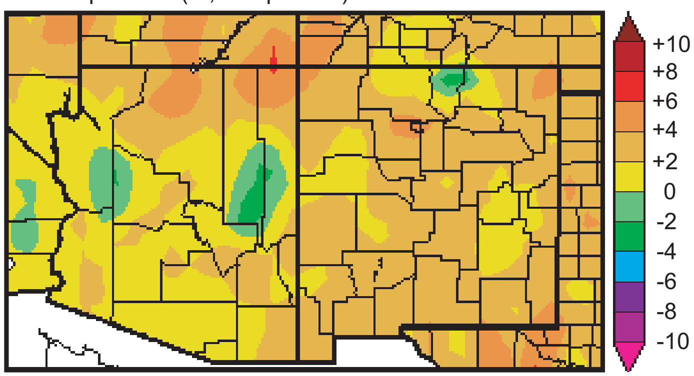
1a. Water year '02-'03 (through 8/20) departure from average temperature (°F).



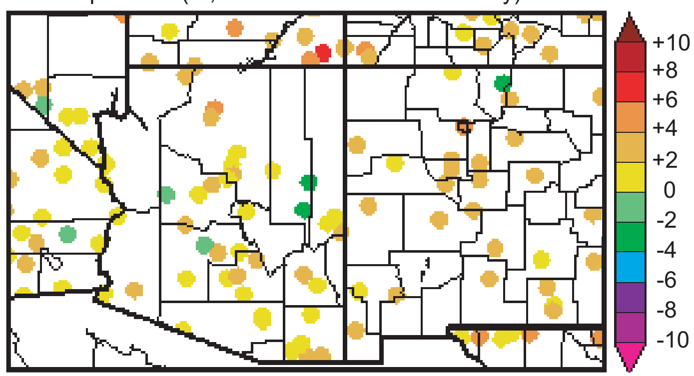
1b. Water year '02-'03 (through 8/20) average temperature (°F).



1c. Previous 30 days (7/22 - 8/20) departure from average temperature (°F, interpolated).



1d. Previous 30 days (7/22 - 8/20) departure from average temperature (°F, data collection locations only).



Highlights: Temperatures continue to remain 1-4° F above normal across much of Arizona and New Mexico. While portions of the White Mountains in eastern Arizona, as well as small areas of western Arizona and northern New Mexico, experienced slightly below-average temperatures during the last month (Figures 1c and 1d), nearly all areas in both states have experienced above-average temperatures since the water year began in October 2002 (Figures 1a and 1b). In particular, temperatures have been well above average in southern Arizona and central New Mexico. Analyses from the Western Regional Climate Center (not shown) indicate that above-average water year temperatures have been chiefly driven by high minimum (nighttime low) temperatures in southern Arizona and central New Mexico and high maximum (daytime high) temperatures in southeastern Arizona.

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 arithmetic mean of annual data from 1971-2000. The 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.

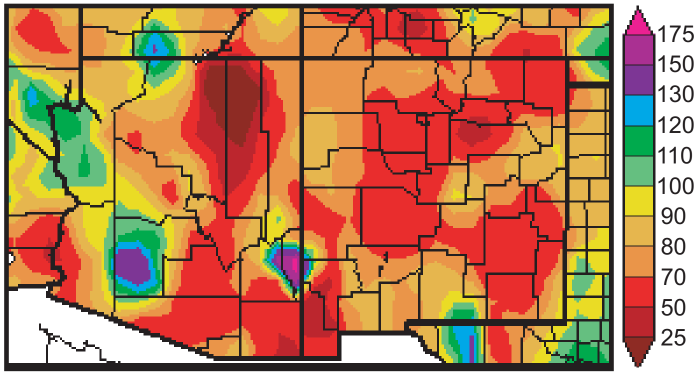
The continuous color maps (Figures 1a, 1b, 1c) are derived by taking measurements at individual meteorological stations and mathematically interpolating (estimating) values between known data points. The blue numbers in Figure 1a, the red numbers in Figure 1b, and the dots in Figure 1d show data values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

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

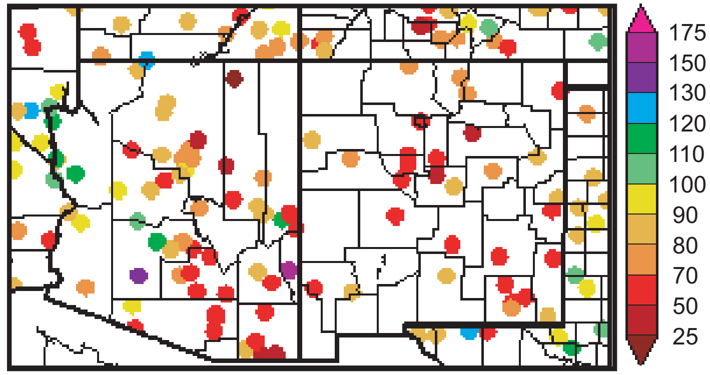
Figures 1c and 1d are experimental products from the High Plains Regional Climate Center (HPRCC).

2. Recent Conditions: Precipitation (up to 08/20/03) Source: High Plains Regional Climate Center

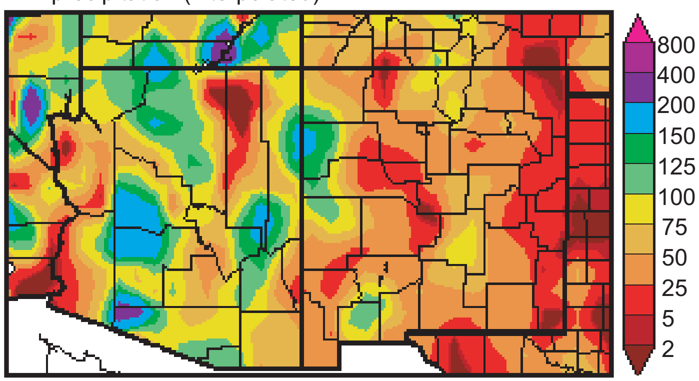
2a. Water year '02-'03 (through 8/20) percent of average precipitation (interpolated).



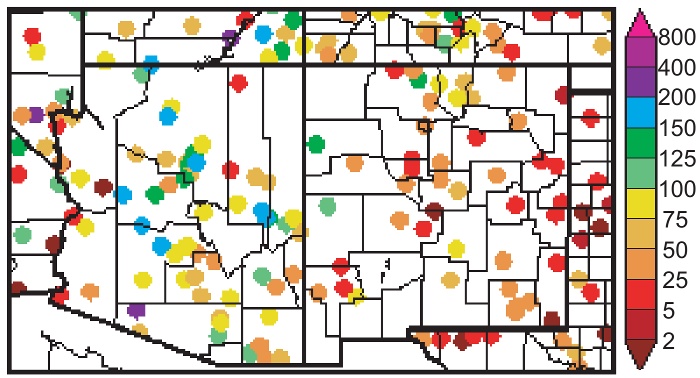
2b. Water year '02-'03 (through 8/20) percent of average precipitation (data collection locations only).



2c. Previous 30 days (7/22 - 8/20) percent of average precipitation (interpolated).



2d. Previous 30 days (7/22 - 8/20) percent of average precipitation (data collection locations only).



Highlights: Most areas of Arizona and New Mexico have received below-average precipitation since October 1, 2002 (Figures 2a and 2b). However, precipitation during the last 30 days associated with the North American Monsoon has helped moderate moisture in parts of Arizona. Portions of southwestern and north-central Arizona received average to above-average rainfall in the last month. Most areas of New Mexico, however, continued to experience generally dry conditions (Figures 2c and 2d); the National Weather Service reported that July 2003 was the driest July on record in New Mexico. The arrival of the summer monsoon has eased wildfire danger across most of the region.

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, 2002 we are in the 2003 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 on August 18, 2002) with how much precipitation typically is received, based on a long-term average (1971-2000) of daily precipitation.

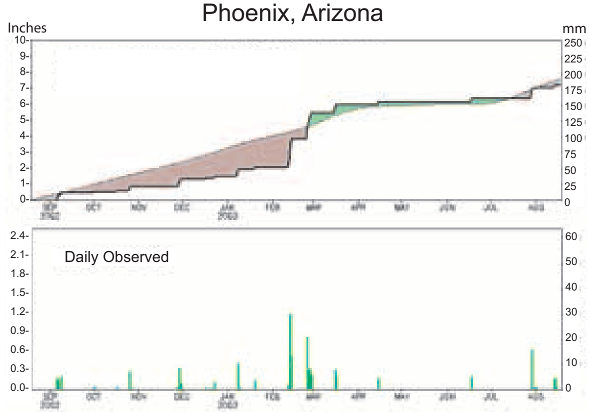
The top of each of the pairs of graphs shows average (dotted line) and actual (solid line) accumulated precipitation (i.e., each day's precipitation total is added to the previous day's total for a 365-day period). If accumulated precipitation is below the long-term average, the region between the long-term 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 sense of how frequent and how intense individual precipitation *events* have been at the selected stations.

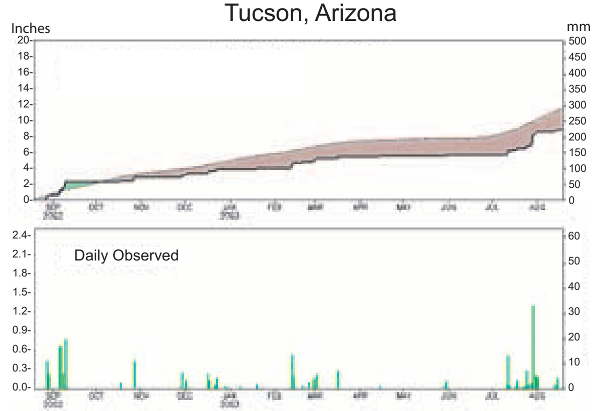
It is important to note that the scales for both the accumulated precipitation and the daily precipitation vary from station to station.

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.

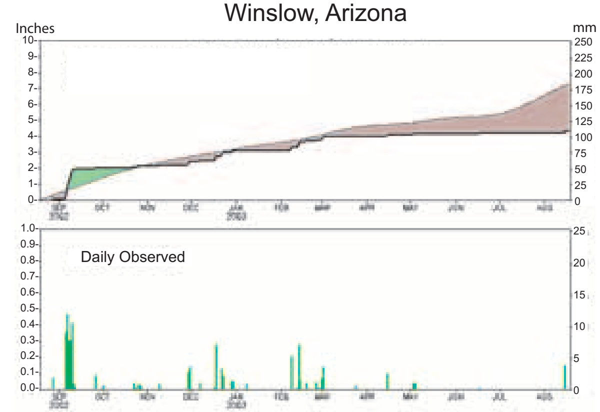
Phoenix, Arizona



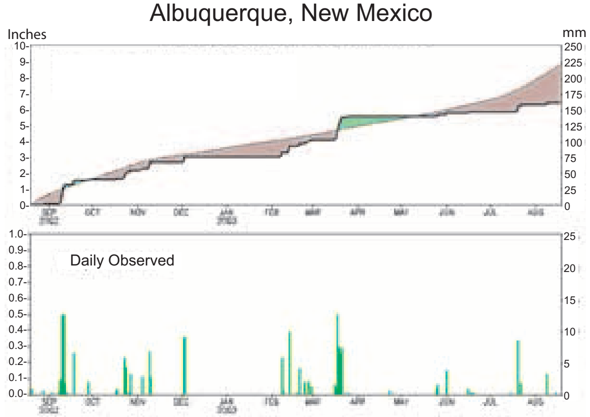
Tucson, Arizona



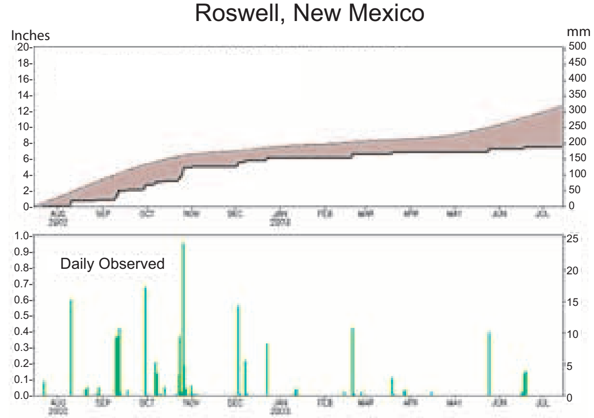
Winslow, Arizona



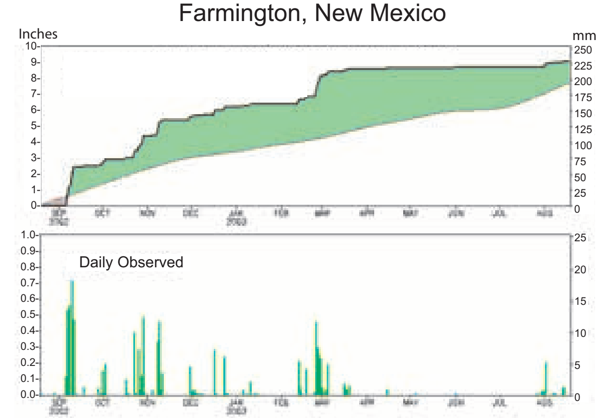
Albuquerque, New Mexico



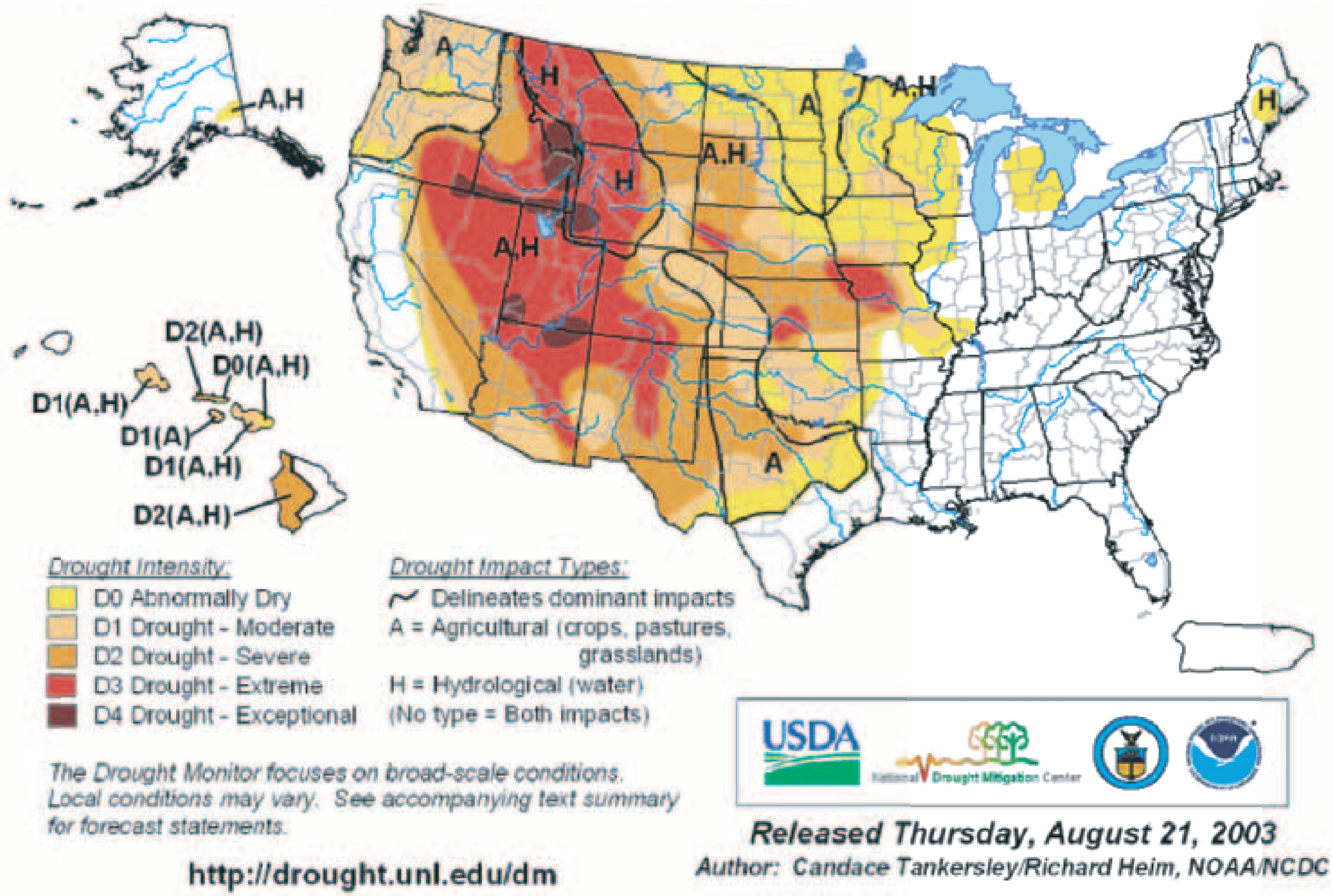
Roswell, New Mexico



Farmington, New Mexico



4. U.S. Drought Monitor (updated 08/19/03) ♦ 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 08/21 and is based on data collected through 08/19 (as indicated in the title).

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.

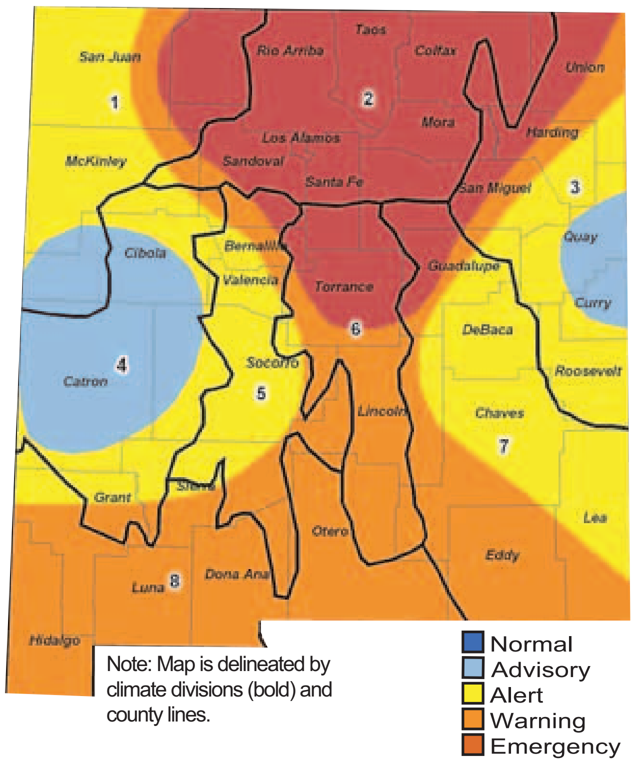
Highlights: Drought of varying severity persists in Arizona and New Mexico. In the last month, the drought has improved in parts of Southern Arizona due to arrival of monsoonal moisture; however, most of Central and Northern Arizona remains under severe to extreme drought conditions. Drought conditions in New Mexico are largely unchanged in the last 30 days, with areas of severe and extreme drought dominating the northern and eastern portions of the state. Numerous measures are being undertaken to alleviate drought impacts across the region, such as the disbursement of shared $2.5 million in state funding to several towns in northeastern and eastern New Mexico, and state-subsidized installation of water recirculation pumps for residents of Goodyear, AZ.

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 07/14/03) Source: New Mexico NRCS

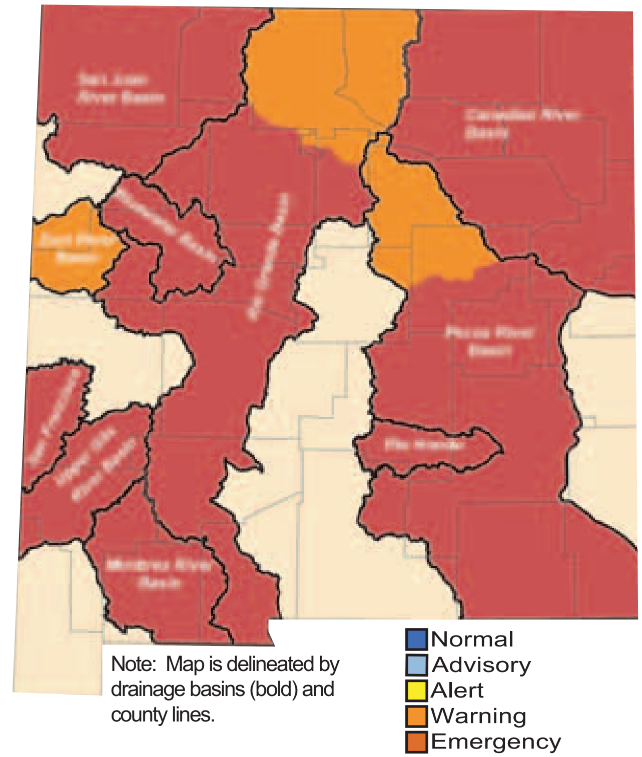
Meteorological Drought Map

Drought Status as of July 14, 2003



Hydrological Drought Map

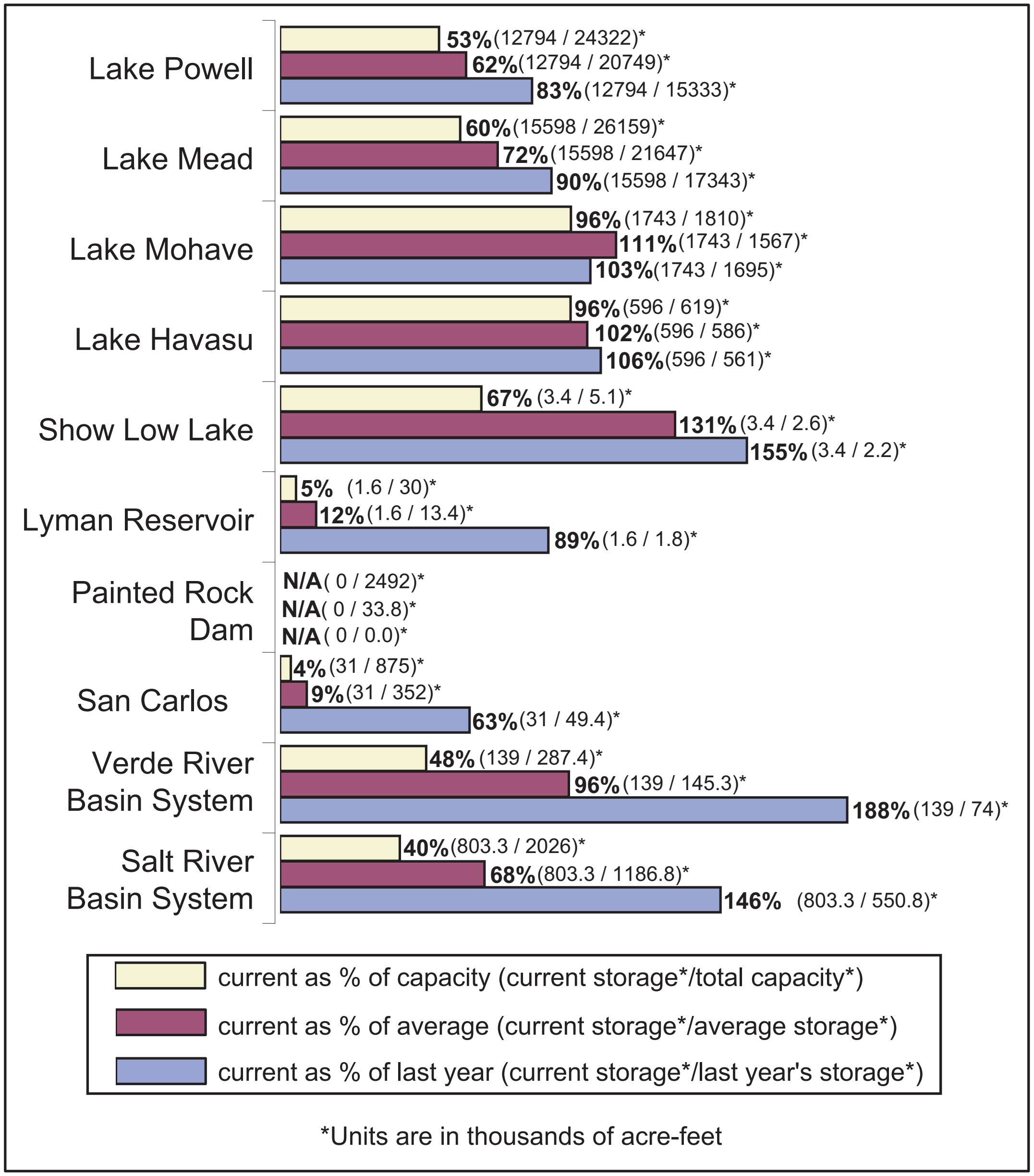
Drought Status as of July 14, 2003



Notes: As of July 14, 2003, the New Mexico Drought Monitoring Committee (NMDMC) reported severe meteorological drought conditions in north-central New Mexico as a result of above-normal temperatures and below-normal rainfall. Meteorological drought conditions also persist at moderate levels across much of the southern tier of the state, but conditions have improved to near-normal levels along both the eastern and western borders in conjunction with monsoonal precipitation. From a hydrologic perspective, severe drought conditions are present in nearly all the major New Mexico river basins. Thunderstorm activity is expected to improve some aspects of drought between now and early September, but this moisture is not likely to provide much help with replenishing large reservoir water supplies. Projections from the National Weather Service suggest that reservoir storage in the Rio Grande and Pecos Basins, for example, is likely to be even lower by the end of the summer. Streamflow conditions remain below average statewide and ground water levels in many parts of New Mexico continue to decline.

The New Mexico maps (http://www.nm.nrcs.usda.gov/drought/drought.htm) 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 July 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 08/15/03, Arizona's report had been updated through the end of July.

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)

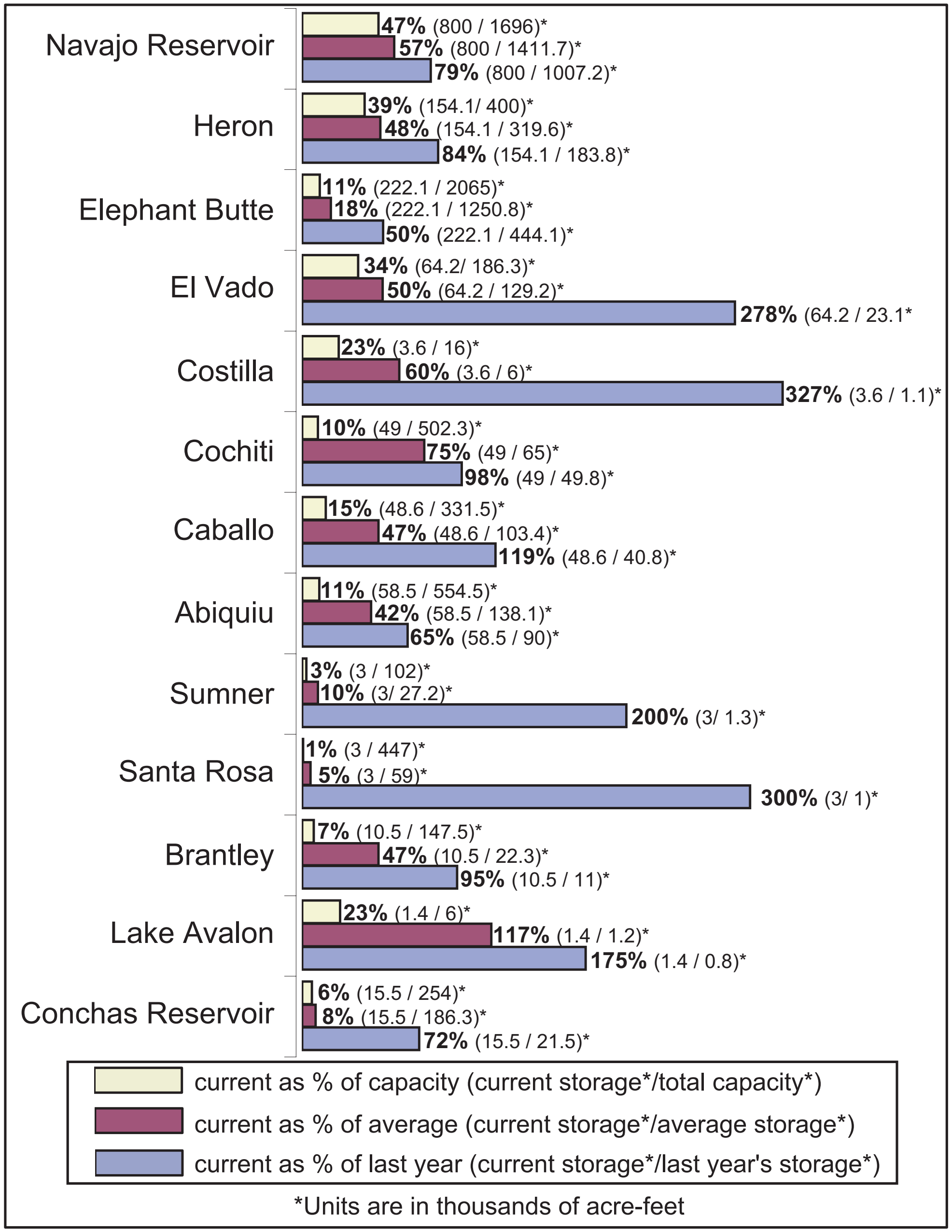
Highlights: Most Arizona reservoir levels held steady or decreased slightly since last month. Of particular note are decreases in current storage in the Verde and Salt River Basin Systems, San Carlos Reservoir, Show Low Lake, and Lyman Reservoir.

On July 8, 2003 Phoenix hosted the first of eight regional meetings to discuss issues raised by *Water 2025*, Interior Secretary Gale Norton's plan for preventing water crises and conflict (*Arizona Republic,* July 6, 2003). Issues of particular concern included growth demands on water supply, drought, agricultural water use, and legal issues.

The executive director of the Arizona Municipal Water Users Association said that rural Arizona towns such as Payson, Prescott, Sedona, and Williams were ripe for water conflict (*Albuquerque Journal,* July 8, 2003).

The U.S. Bureau of Reclamation stated that Imperial Valley, California farmers, who use most of the state's supply from the Colorado River, are wasting water and should have their allotment cut by 9% (275,900 acre-feet of water) (*New York Times,* July 4, 2003).

7. New Mexico Reservoir Levels (through the end of July 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 08/15/03, New Mexico's report had been updated through the end of July.

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: Some New Mexico reservoir levels have declined since last month, while some northern New Mexico reservoir levels have increased. Of particular note are decreases in current storage at Caballo, Elephant Butte, Sumner, and Santa Rosa.

The New Mexico Drought Monitoring Committee reported that in most cases New Mexico streamflow volumes have decreased since May. The water year-to-date streamflow is *significantly* below average statewide, except for the Rio Chama basin, which is below average, but to a lesser degree.

The New Mexico Office of Emergency Management reported that the community of Alamo Navajo in Socorro County, New Mexico, experienced well failure in the community water system. The National Guard is currently hauling water to the community.

The New Mexico state engineer's office and the Interstate Stream Commission have initiated a series of public hearings to develop a state water plan. The statewide plan must be ready by November for New Mexico Governor Bill Richardson and state lawmakers (*Albuquerque Journal*, July 8, 2003).

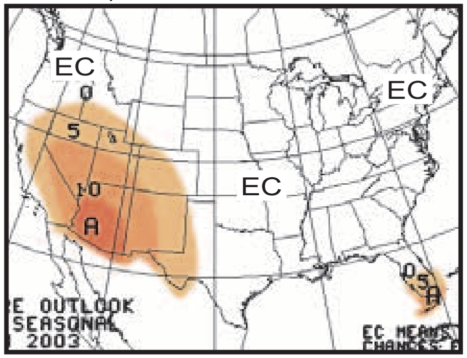
Section C

FORECASTS

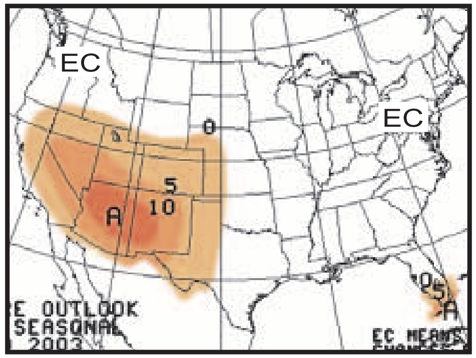
8. Temperature: Multi-season Outlooks ♦ Source: NOAA Climate Prediction Center

Overlapping 3-month long-lead temperature forecasts (released 08/21/03).

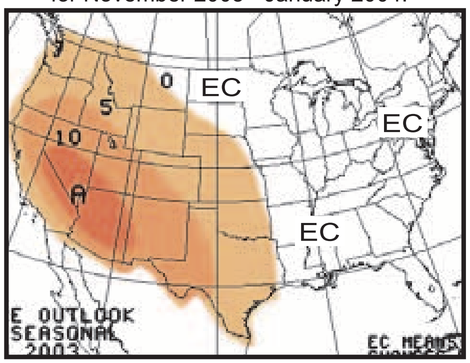
8a. Long-lead national temperature forecast for September - November 2003.



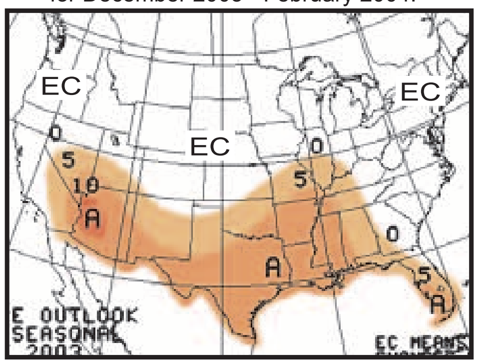
8b. Long-lead national temperature forecast for October - December 2003.



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



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



Percent Likelihood of Above and Below Average Temperatures*

- 10% - 20%
- 5% - 10%
- 0% - 5%

A = Above

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

Highlights: The NOAA-CPC temperature outlooks for September 2003 through February 2004 forecast increased probabilities of above-average temperatures for most of the Southwest (Figures 10a-d). The maximum likelihood (43% to 53%) of above-average temperatures is centered over Arizona for most of the fall and early winter. The CPC predictions are based long-term temperature trends for the region and indications from statistical models and historical impacts on the Southwest when equatorial Pacific Ocean temperatures are in either weak La Niña or ENSO-neutral conditions. These particular forecasts rely more heavily on the above-normal temperature trends experienced in the Southwest for the past ten years and less on conditions related to La Niña episodes. IRI temperature forecasts (*not pictured)* also indicate increased probabilities of above-average temperature for parts of Mexico and the adjacent southwestern United States, especially southern New Mexico and eastern Arizona.

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 "excess" 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 excess likelihood forecast, in areas with light brown shading (0-5% excess likelihood of above average) 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 temperature.

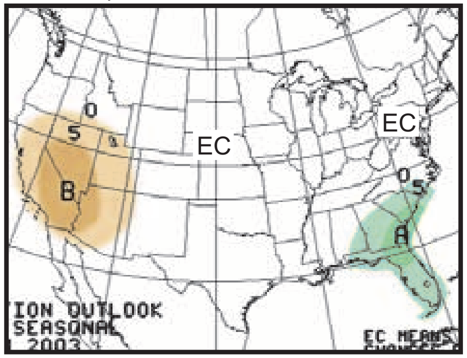
The term *average* refers to the 1971-2000 average. This practice is standard in the field of climatology.

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

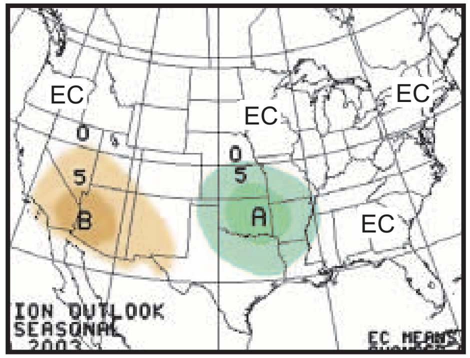
9. Precipitation: Multi-season Outlooks Source: NOAA Climate Prediction Center

Overlapping 3-month long-lead precipitation forcasts (released 08/21/03).

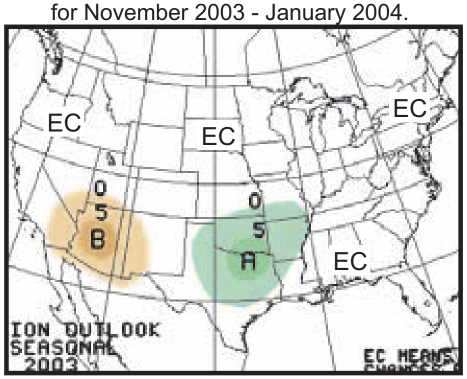
9a. Long-lead U.S. precipitation forecast for September - November 2003.



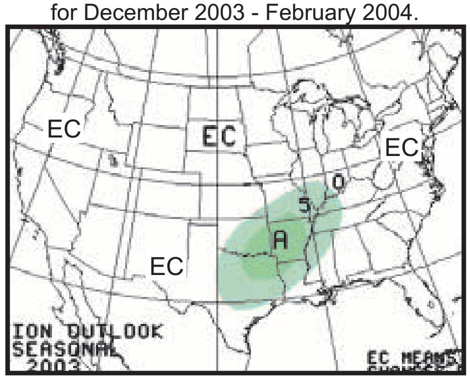
9b. Long-lead U.S. precipitation forecast for October - December 2003.



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



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



Percent Likelihood of Above or Below Average Precipitation*

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

0% - 5%
5% - 10%
B = Below

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

Highlights: NOAA-CPC forecasts for September 2003-February 2004 indicate slightly increased probabilities of below-average precipitation for the Southwest, centered over Arizona for the fall through mid-winter. Weak La Niña to ENSO neutral conditions are complicating long-lead forecasts. The below-average precipitation forecast for the Southwest appears to be based on current weak La Nina conditions and historical impacts typically associated with La Niña events. The weak ENSO signal reduces the overall confidence in both temperature and precipitation forecasts. The September 2003-February 2004 IRI precipitation forecasts (*not pictured)* also indicate slightly increased probabilities of below-average precipitation for the Southwest, especially over western Arizona during the fall and southern Arizona and New Mexico during the winter. 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 "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.

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 excess likelihood forecast, in areas with light green shading (0-5% excess likelihood of above-average) 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.

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.

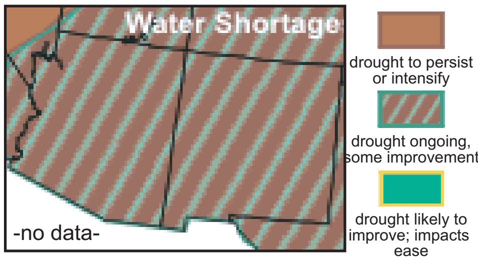
10. Drought: Seasonal Drought and PHDI Outlook Maps ♦ Sources: NOAA-CPC, NCDC

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.

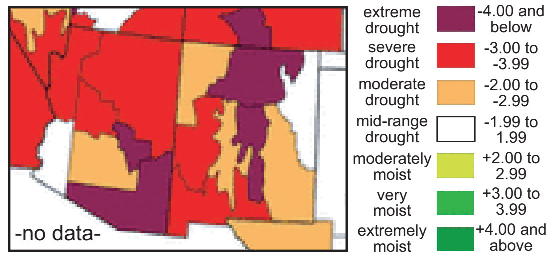
Figures 10b-e are based on the Palmer Hydrological Drought Index (PHDI), which reflects long-term precipitation deficits and is a measure of reservoir and groundwater level impacts, which take longer to develop and longer to recover. Figure 10b shows the current PHDI status for Arizona and New Mexico.

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 -0.5 (e.g., in Figure 10b, these regions are not in hydrological drought).

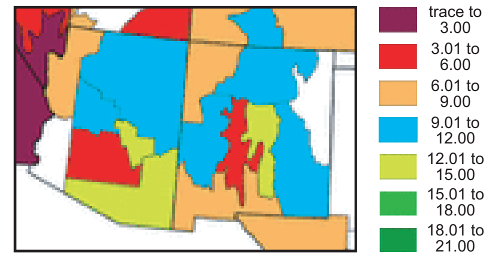
10a. Seasonal drought outlook through November 2003 (accessed 08/21).



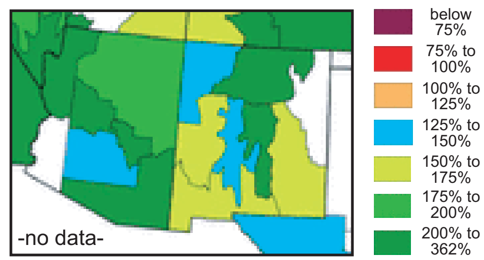
10b. June 2003 PHDI conditions (accessed 07/18).



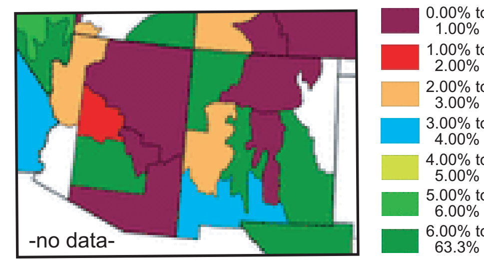
10c. Precipitation (in.) required to end current drought conditions in three months.



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.



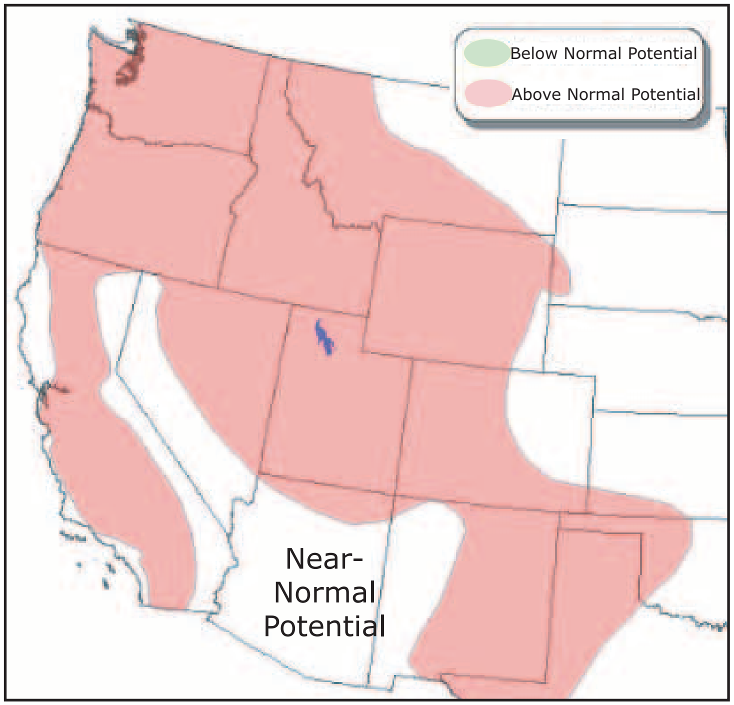
The season in which the precipitation falls greatly influences the amount of precipitation needed to end a drought. For example, during a typically wet season (such as the summer monsoon or winter precipitation events), more precipitation may be required to end a drought than during a typically dry season (such as the arid foresummer). 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, based on regional precipitation records from 1961–1990, that is needed to end drought conditions in three months.

Figures 10c and 10d do not give an indication of the probability of receiving enough precipitation to end drought in three months. 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 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.

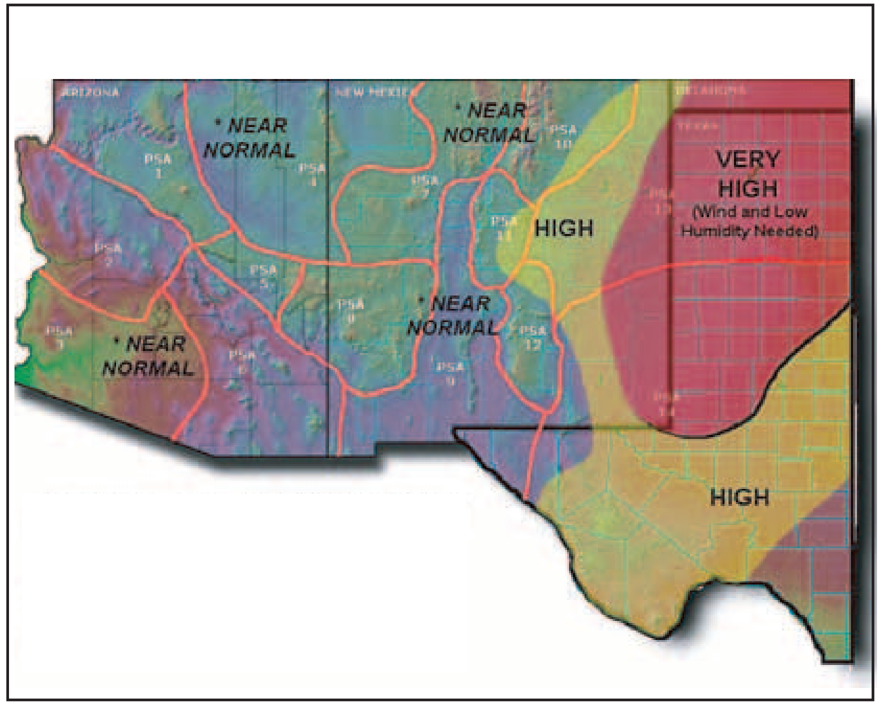
For more information, visit: http://www.drought.noaa.gov/ —and— http://www.ncdc.noaa.gov/oa/climate/research/drought/drought.html

11. National Wildland Fire Outlook ♦ Sources: NICC, SWCC

11a. Monthly Wildfire Outlook (valid August 1 - August 31)



11b. Weekly Fire Danger Outlook (valid August 19 - August 28)



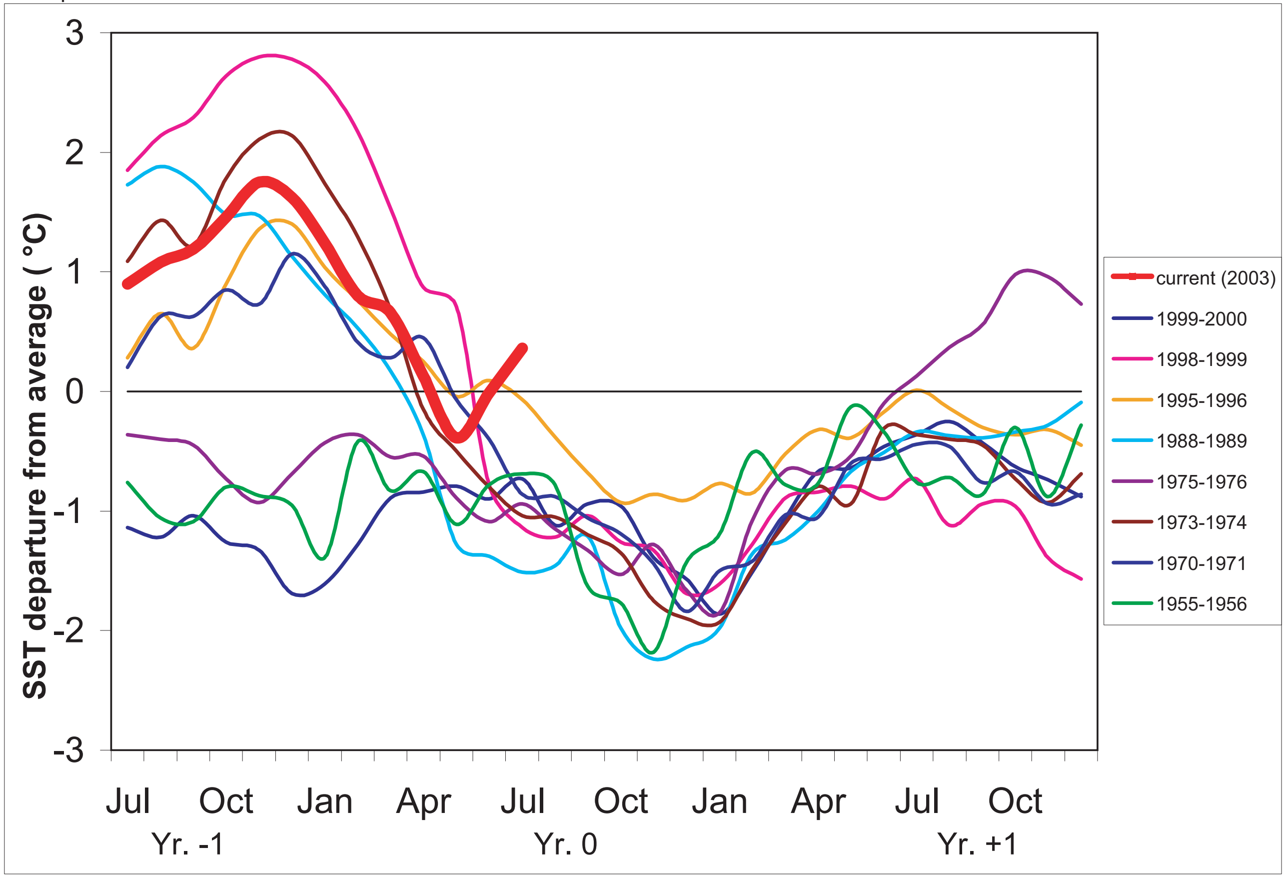
Notes: The National Interagency Coordination Center (NICC) at the National Interagency Fire Center (NIFC) produces seasonal and monthly (Figure 11a) wildland fire outlooks. These forecasts consider climate forecasts and surface-fuels conditions to assess fire potential. They are subjective assessments, based on synthesis of regional fire danger outlooks. The Southwest Coordination Center (SWCC) produces seasonal, monthly, weekly (Figure 11b), and daily fire danger outlooks for Arizona, New Mexico, and west Texas, based on climate and weather forecasts, comparisons with historical data, and surface fuels reports. The weekly fire danger outlook (Figure 11b) shows more specific information than the monthly outlook (Figure 11a). We are providing the weekly outlook here to indicate that this product is also available on the SWCC website (below).

Highlights: The August 1-31, 2003 NICC wildfire outlook is for near-normal fire potential for most of Arizona and western New Mexico and above-normal fire potential for eastern New Mexico. Near-normal monsoon precipitation has eased fire potential in the mountains of Arizona and western New Mexico. Eastern New Mexico has received below normal precipitation amounts, elevating fire risk through August. As of July 27, 2003, more than 259,000 acres have burned in Arizona and New Mexico. On average, approximately 339,000 acres burn in Arizona, New Mexico, and west Texas by the end of July.

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/ (click on Predictive Services > Outlooks)

12. Tropical Pacific Sea Surface Temperature Forecast ♦ Sources: 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 17) 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: Central and eastern equatorial Pacific Ocean sea-surface (SST) and subsurface temperatures continued to increase slightly during July making the development of a La Niña episode unlikely. Conditions are currently near-average. The return to near-average conditions is a result of a late-spring/early-summer westerly wind event (the type usually associated with El Niño) stretching across nearly the entire Pacific Ocean basin. June and July easterly winds were close to normal and will most likely limit the development of an El Niño episode, in favor of ENSO neutral conditions. The International Research Institute for Climate Prediction (IRI) estimates that there is a 70% likelihood that ENSO-neutral conditions will persist through the winter of 2003. NOAA's Climate Prediction Center (CPC) notes that most forecast models project the development of weak La Niña or ENSO-neutral conditions. 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/