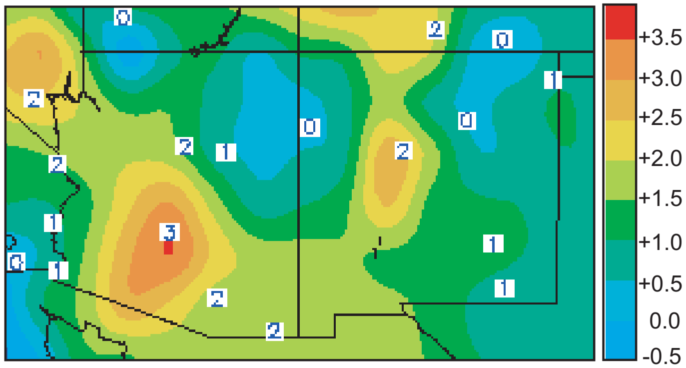
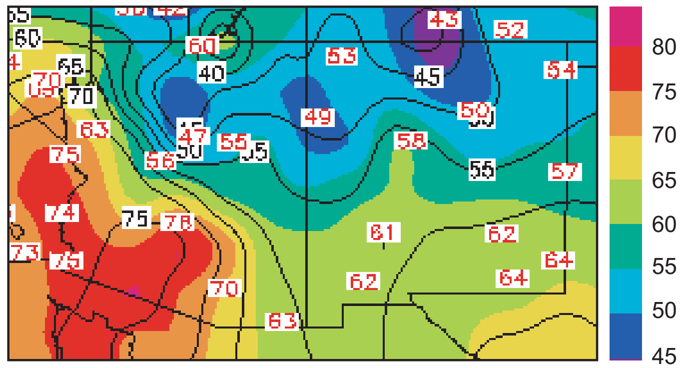
1. Recent Conditions: Temperature (up to 09/17/03) Sources: WRCC, HPRCC

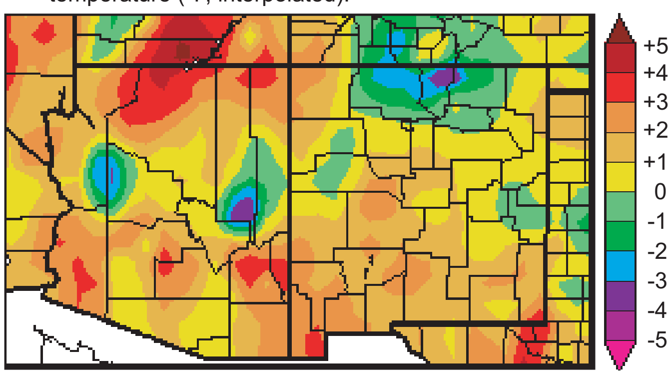
1a. Water year '02-'03 (through 9/17) departure from average temperature (°F).



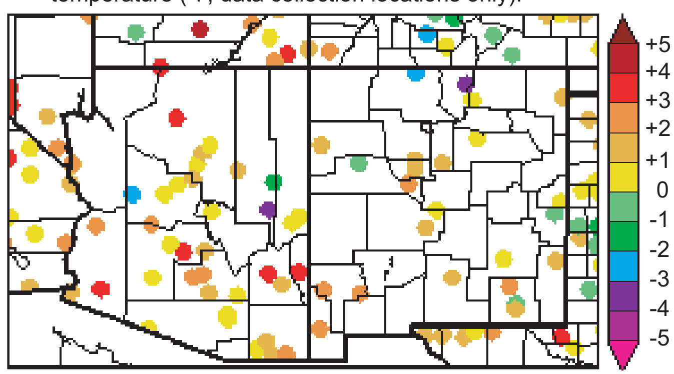
1b. Water year '02-'03 (through 9/17) average temperature (°F).



1c. Previous 30 days (8/19 - 9/17) departure from average temperature (°F, interpolated).



1d. Previous 30 days (8/19 - 9/17) departure from average temperature (°F, data collection locations only).



Highlights: During the 2002-2003 water year, temperatures have been average to above average across most of our region (Figure 1a). Temperatures have been consistently above average across most of the low deserts of southwestern Arizona, as well as in the Rio Grande valley of New Mexico. During the past month, notable exceptions have been centered over the eastern Mogollon Rim and in north-central New Mexico (Figures 1c, 1d). 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. Analyses from the Western Regional Climate Center (not shown) indicate that recent above-average temperatures have been chiefly driven by particularly high minimum (nighttime low) temperatures in southwestern 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.

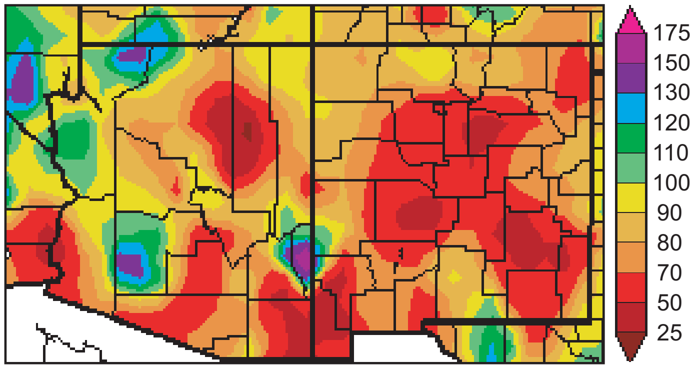
The continuous color maps (Figures 1a, 1b, 1c) are derived by taking measurements at individual meteorological stations and mathematically interpolating (estimating) values between known data points. The blue numbers in Figure 1a, the red numbers in Figure 1b, and the dots in Figure 1d show data values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

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

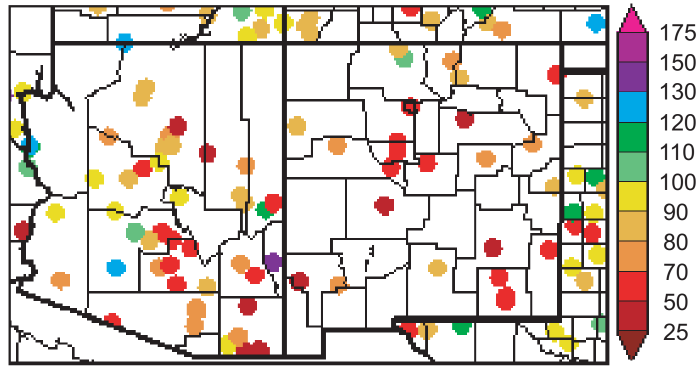
Figures 1c and 1d are experimental products from the High Plains Regional Climate Center (HPRCC).

2. Recent Conditions: Precipitation (up to 09/17/03) Source: High Plains Regional Climate Center

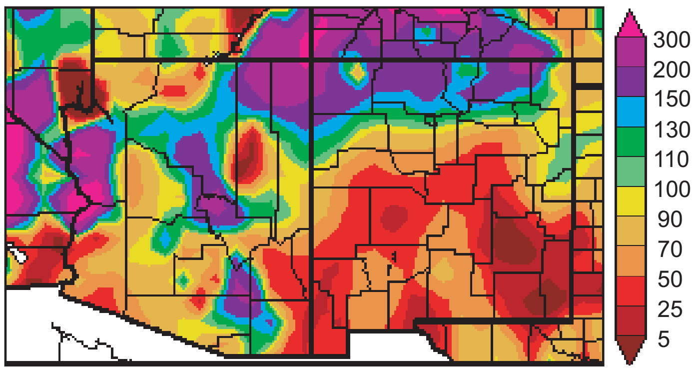
2a. Water year '02-'03 (through 9/17) percent of average precipitation (interpolated).



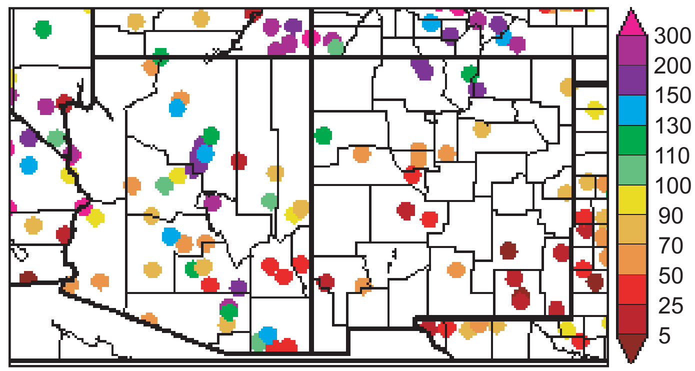
2b. Water year '02-'03 (through 9/17) percent of average precipitation (data collection locations only).



2c. Previous 30 days (8/19 - 9/17) percent of average precipitation (interpolated).



2d. Previous 30 days (8/19 - 9/17) percent of average precipitation (data collection locations only).



Highlights: Most of Arizona and New Mexico has received below-average precipitation since October 1, 2002 (Figures 2a and 2b). However, precipitation during the last 30 days has brought short-term drought relief to parts of Arizona and northern New Mexico (Figures 2c and 2d). In particular, the area near Flagstaff and in north-central Arizona at elevations above 7000 feet along the central and eastern Mogollon Rim received copious precipitation in early September. Remote automated weather stations (RAWS; not shown in figures above), in the rim country of east-central Arizona recorded several inches of precipitation between September 9-15. In contrast, near Winslow, Arizona conditions have been exceptionally dry. In southern and, especially, southeastern New Mexico there has been almost no precipitation during the past month, exacerbating the effects of a particularly dry summer. Persistent precipitation associated with the remnants of Tropical Storm Marty is expected to bring short-term relief to southwestern Arizona.

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.

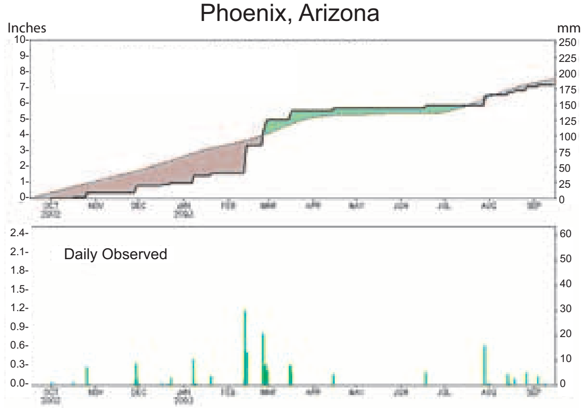
The top of each of the pairs of graphs shows average (dotted line) and actual (solid line) accumulated precipitation (i.e., each day's precipitation total is added to the previous day's total for a 365-day period). If accumulated precipitation is below the long-term average, the region between the long-term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

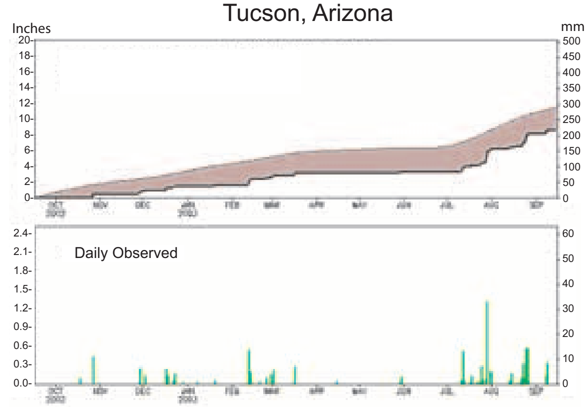
It is important to note that the scales for both the accumulated precipitation and the daily precipitation vary from station to station.

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.

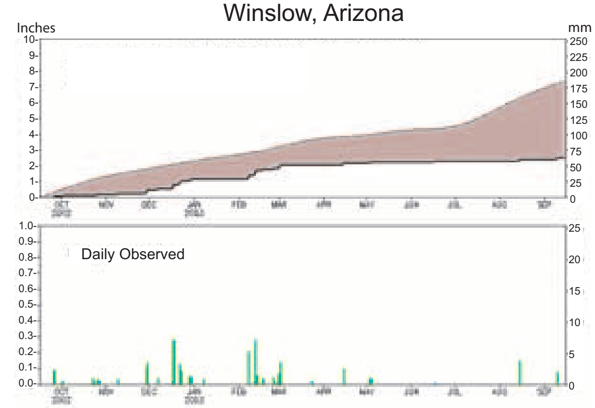
Phoenix, Arizona



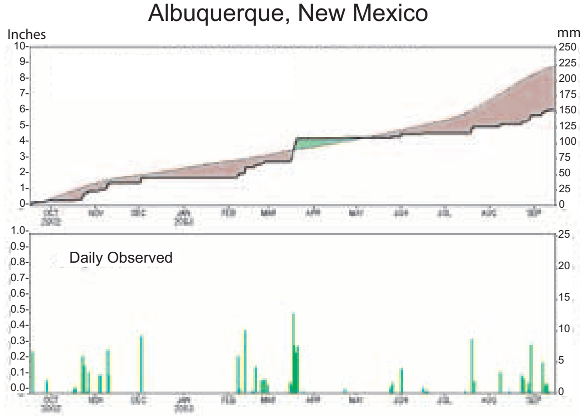
Tucson, Arizona



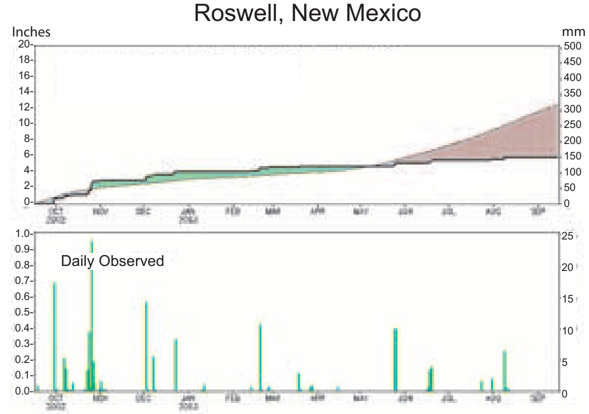
Winslow, Arizona



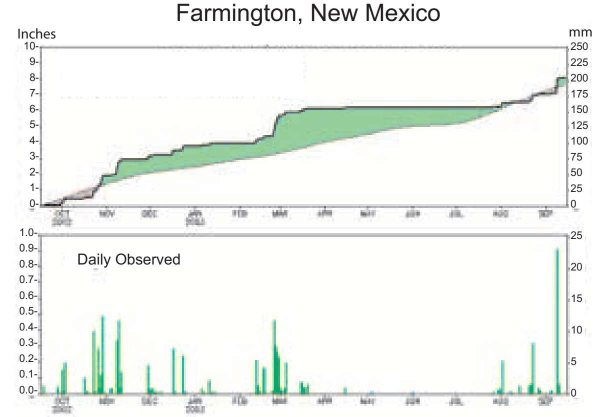
Albuquerque, New Mexico



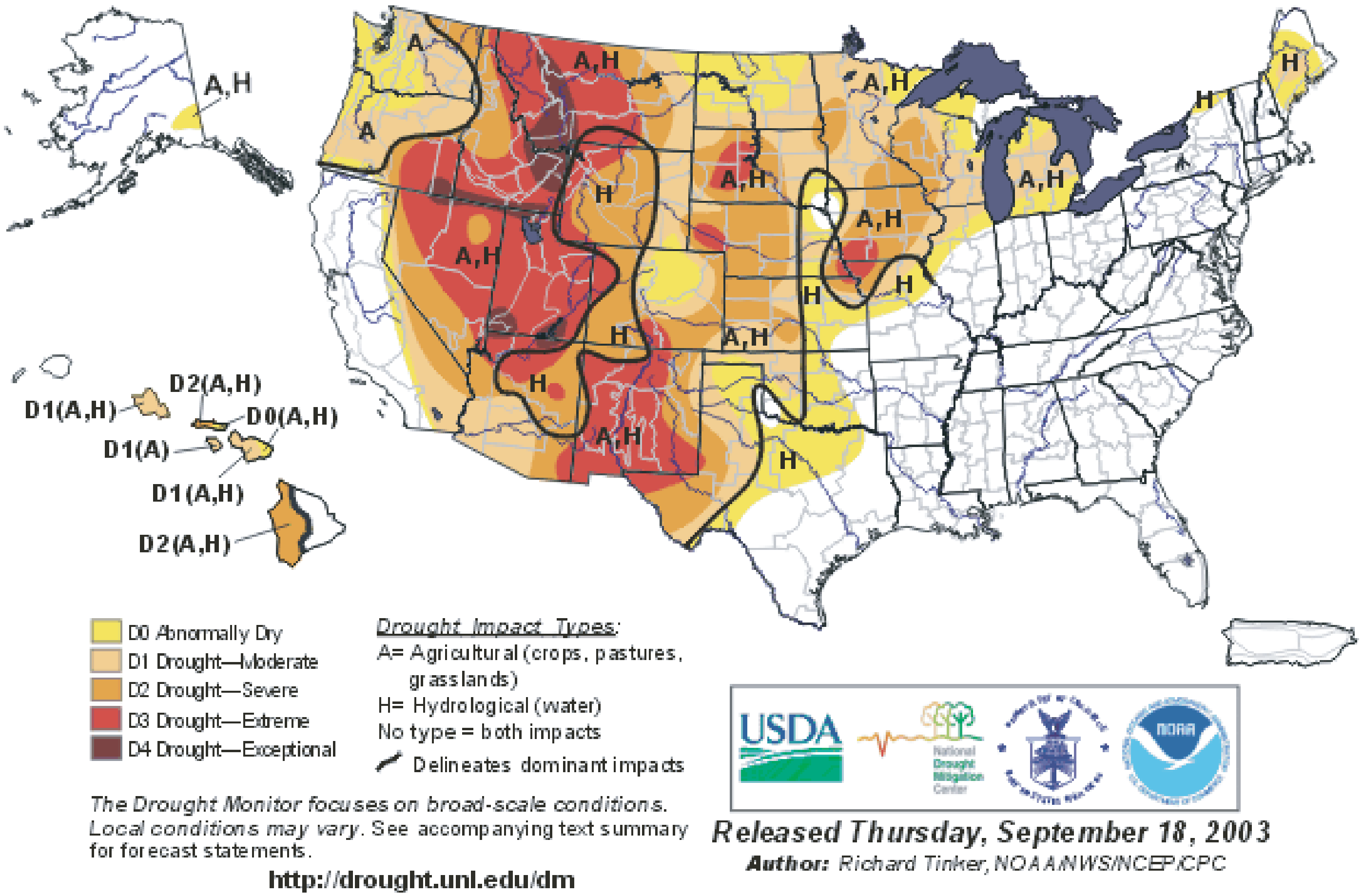
Roswell, New Mexico



Farmington, New Mexico



4. U.S. Drought Monitor (updated 09/18/03) ♦ 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 09/18 and is based on data collected through 09/17 (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.

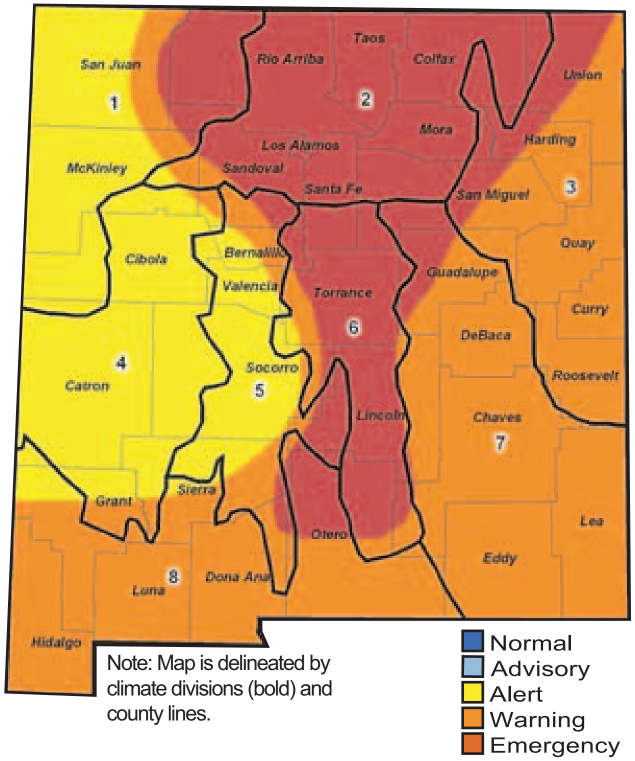
Highlights: Drought continues in the Southwest. There have been short-term improvements in north-central and east-central Arizona, especially at elevations above 7000 feet, associated with early September precipitation. These rains have resulted in the return of flow to several Flagstaff area ephemeral streams, and some understory growth in Mogollon Rim forests. However, most of Arizona and virtually all of New Mexico remains under severe to extreme hydrological drought conditions. Julio Betancourt, a drought researcher at the USGS Desert Laboratory in Tucson, Arizona, speculates that a climate pattern characterized by warm water in the North Atlantic Ocean and cool water in the Northeast Pacific Ocean is driving persistent drought conditions similar to the 1950s (*Associated Press*, September 17, 2003). Long-term drought conditions have threatened the endangered Sonoran pronghorn population in Arizona, prompting an emergency recovery plan coordinated by the U.S. Fish & Wildlife Service (*Tucson Citizen*, September 8, 2003). The city of Gilbert, Arizona mandated a 5% decrease in water use at town facilities and open spaces, as well as encouraging residents, businesses, and homeowners associations to voluntarily decrease the water use by 5% (*Arizona Republic*, September 20, 2003).

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 08/19/03) Source: New Mexico NRCS

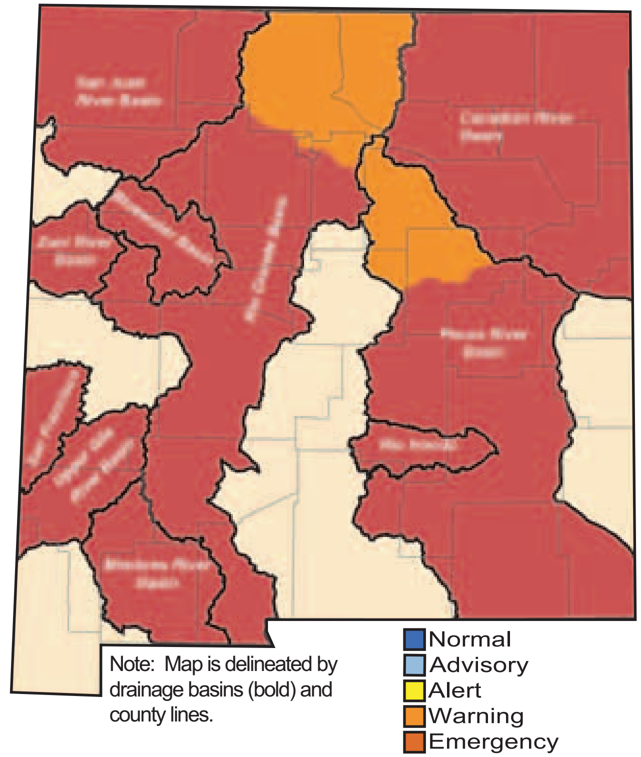
Meteorological Drought Map

Drought Status as of August 19, 2003



Hydrological Drought Map

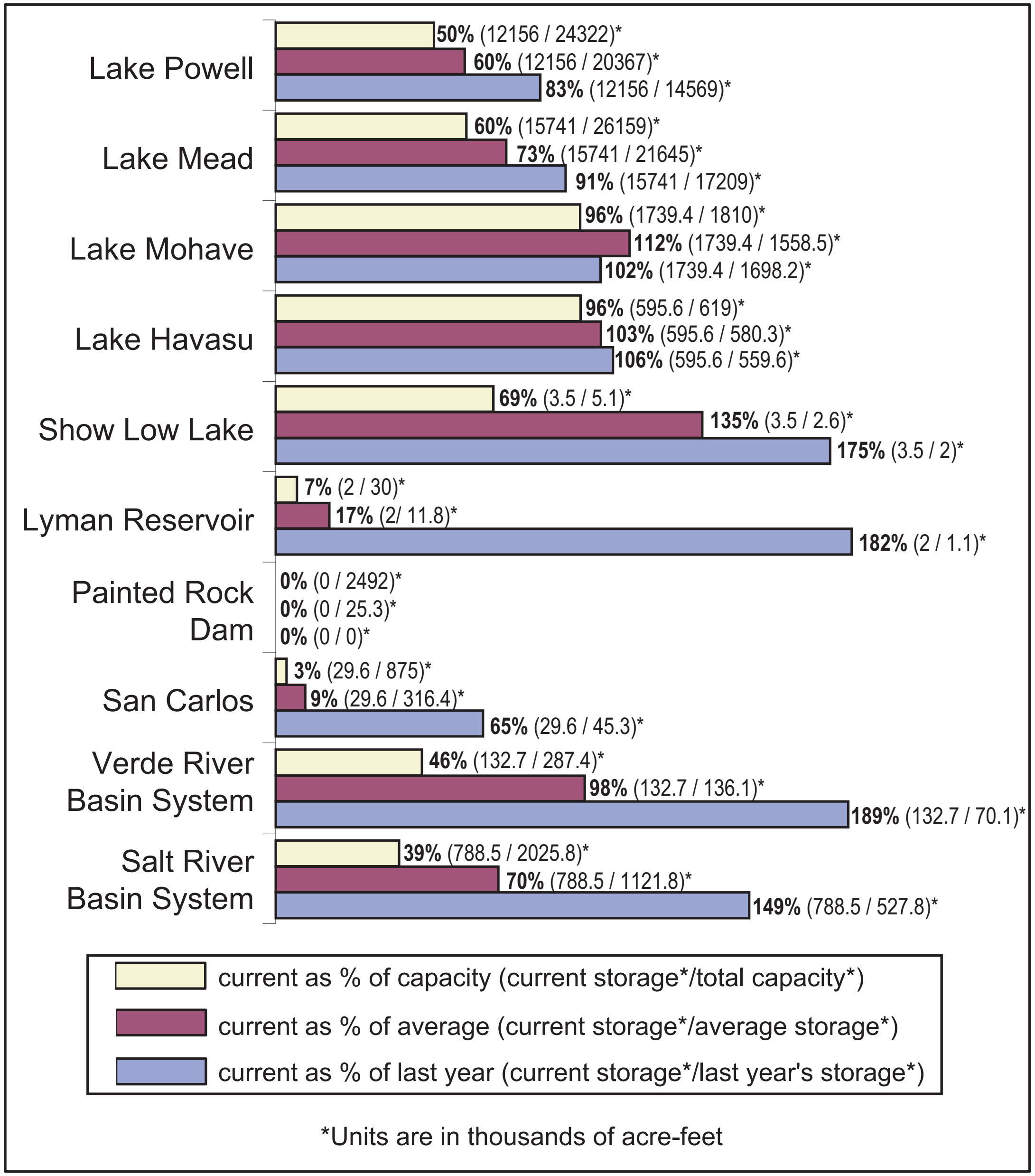
Drought Status as of August 19, 2003



Notes: As of August 19, 2003, the New Mexico Drought Monitoring Committee (NMDMC) reported severe meteorological drought conditions in north-central New Mexico as a result of above-average temperatures and below-average rainfall. All of the state's major river basins are in emergency hydrological drought status. Drought impacts in New Mexico include decreasing groundwater levels, an extensive area of the state (92%) with very dry topsoil conditions (USDA, September 21, 2003), 73% of statewide pasture and rangeland in poor to very poor condition (USDA, September 21, 2003), and high levels of vegetation stress, especially in southeastern New Mexico. According to Esteban Muldavin, an ecologist at the University of New Mexico Museum of Southwestern Biology, drought threatens 69 rare animals and 42 rare plants in the state (*Associated Press*, September 17, 2003). Moreover, as of mid-September more than 770,000 acres of dead pinyon pine in New Mexico have been recorded by aerial surveys (*Associated Press*, September 17, 2003).

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 August 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 09/17/03, Arizona's report had been updated through the end of August.

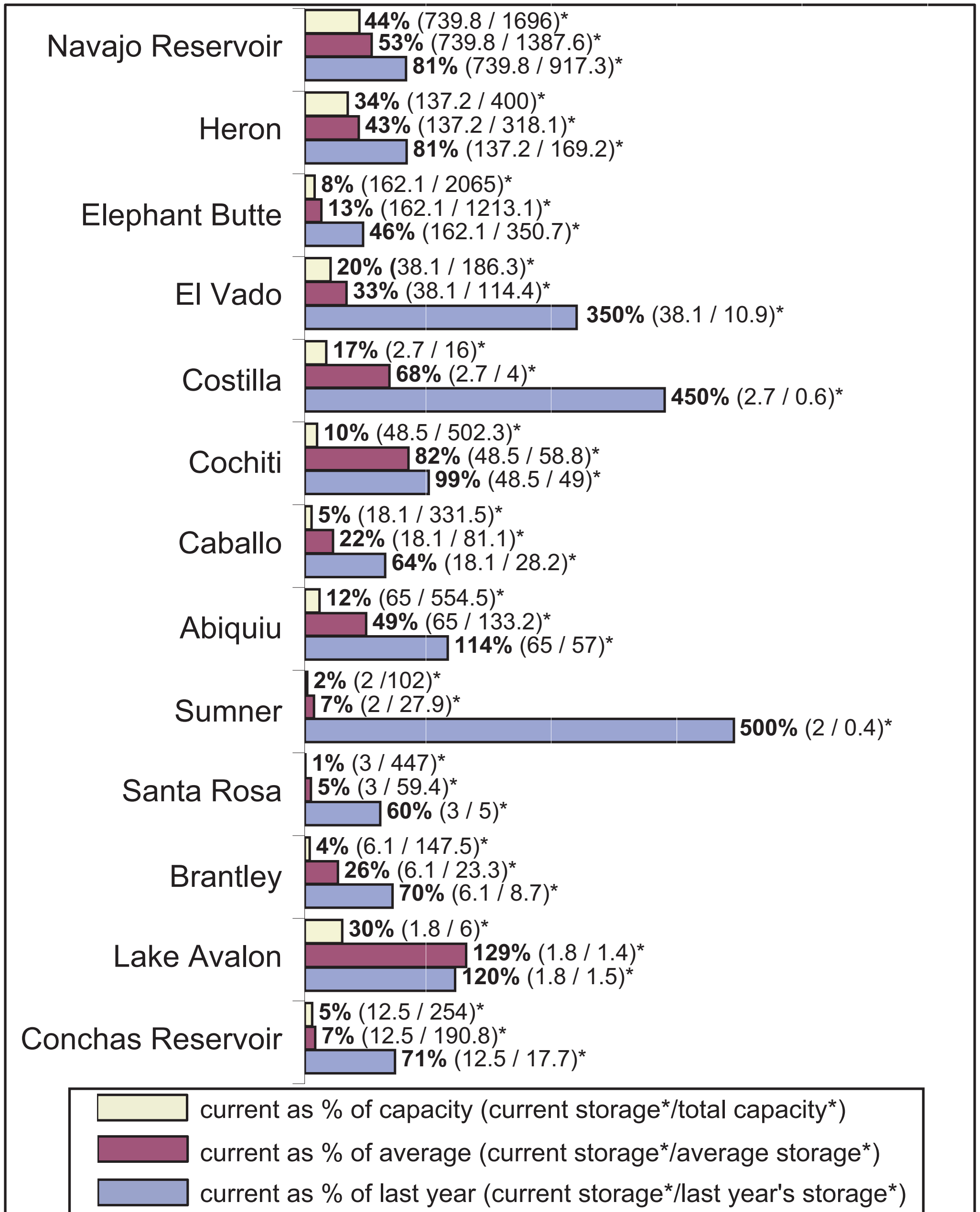
For additional information, contact Tom Pagano of the NWCC-NRCS-USDA (tpagano@wcc.nrcs.usda.gov; 503-414-3010) or Larry Martinez, NRCS, USDA, 3003 N. Central Ave, Suite 800, Phoenix, Arizona 85012-2945; 602-280-8841; Larry.Martinez@az.usda.gov)

Highlights: Since the end of August, reservoir levels decreased slightly for the major reservoirs along the Colorado River. Decreases of similar magnitude were evident in the Salt River and Verde River Basin Systems. Northern Arizona reservoirs, such as Show Low Lake and Lyman Reservoir, showed slight increases in reservoir levels.

Lake Mead is expected to drop to its lowest level in 46 years in 2004 (*Arizona Republic*, September 18, 2003).

The Metropolitan Water District of Southern California became the first party to ratify a crucial agreement over California's use of the Colorado River. The agreement, if passed, would give San Diego and Los Angeles a steady supply of water to accommodate future growth, provided that farmers in the Imperial Irrigation District are willing to sell water to Southern California's large cities. Arizona Department of Water Resources Director Herb Guenther is serving as a member of the negotiating team. (*Arizona Republic,* September 24, 2003).

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



*Units are in thousands of acre-feet

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 09/17/03, New Mexico's report had been updated through the end of August.

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: Since the end of July, reservoir levels have continued to decline in virtually all of New Mexico's reservoirs, with the exception of Abiquiu and Lake Avalon.

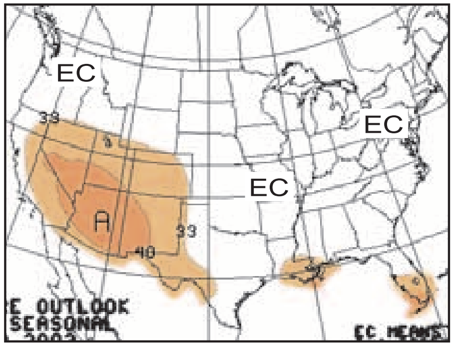
According to an *Albuquerque Journal* poll, New Mexicans are doing their part to conserve water during the drought; 73% of people polled said their households have reduced water use during the past two years (*Albuquerque Journal*, September 20, 2003). The poll found that 90% of Hispanic respondents said they would be willing to make new cutbacks, in contrast to 81% of Anglo respondents. The poll also found that those with annual household income of $60,000 or more are the most likely to say that they are willing to make further cutbacks in their water use.

A recently passed U.S. Senate water spending bill will prevent New Mexico from having to release San Juan-Chama water into the Rio Grande in order to save the endangered silvery minnow. The measure, crafted by New Mexico senators Domenici and Bingaman, also includes language to force implementation of a U.S. Fish & Wildlife plan designed to ensure the survival of the endangered fish (*Albuquerque Journal*, September 17, 2003).

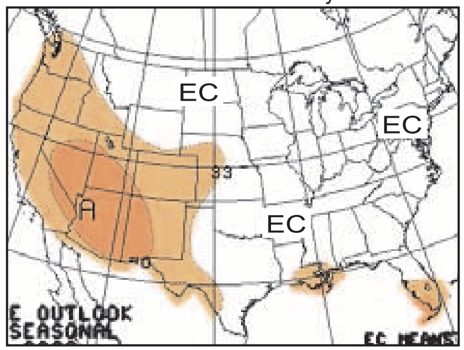
8. Temperature: Multi-season Outlooks ♦ Source: NOAA Climate Prediction Center

Overlapping 3-month long-lead temperature forecasts (released 09/18/03).

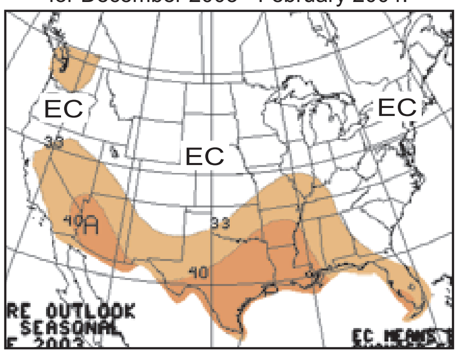
8a. Long-lead national temperature forecast for October - December 2003.



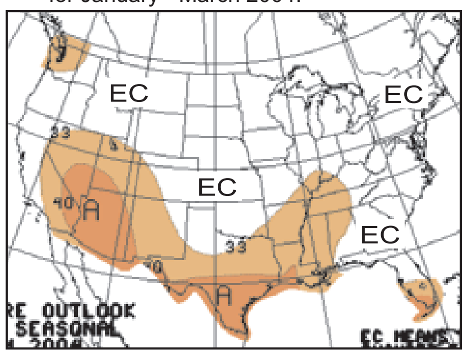
8b. Long-lead national temperature forecast for November 2003 - January 2004.



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



8d. Long-lead national temperature forecast for January - March 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 October 2003 through March 2004 forecast increased probabilities of above-average temperatures for most of the Southwest (Figures 10a-d). The maximum likelihood (38% to 43%) of above-average temperatures is centered over Arizona for most of the fall and winter. The CPC predictions are based chiefly on long-term temperature trends for the region and indications from statistical models. The lack of significant El Niño-Southern Oscillation 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, with a 50% likelihood of above-average temperatures centered over western Mexico and southeastern Arizona during the October-December forecast period. IRI temperature forecasts for subsequent seasons indicate only a 40% likelihood of above-average temperatures for the subsequent forecast periods, centered over the southern and western part 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 "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.

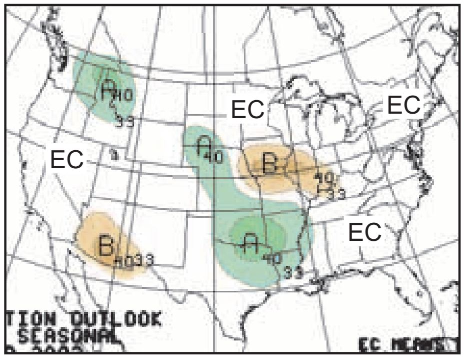
The term *average* refers to the 1971-2000 average. This practice is standard in the field of climatology.

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

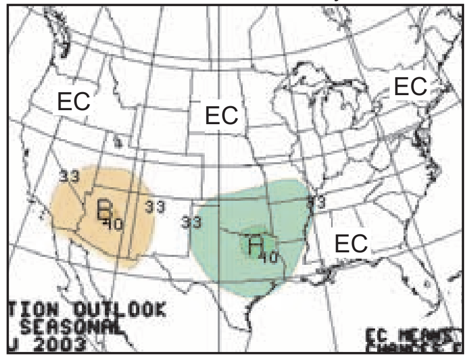
9. Precipitation: Multi-season Outlooks Source: NOAA Climate Prediction Center

Overlapping 3-month long-lead precipitation forcasts (released 09/18/03).

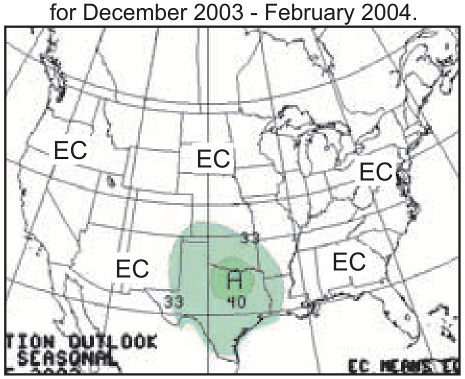
9a. Long-lead U.S. precipitation forecast for October - December 2003.



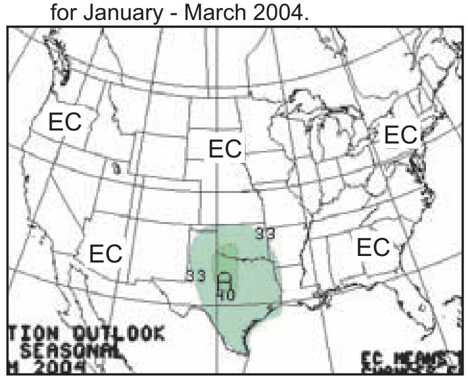
9b. Long-lead U.S. precipitation forecast for November 2003 - January 2004.



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



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

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.

Highlights: NOAA-CPC forecasts for October 2003-March 2004 indicate only slightly increased probabilities of below-average precipitation for the Southwest, centered over Arizona for the fall through mid-winter. These forecasts are based chiefly on statistical models. The lack of significant El Niño-Southern Oscillation conditions in the equatorial Pacific Ocean reduces the overall confidence in precipitation forecasts. CPC forecasters have withheld judgment regarding late winter precipitation. The October 2003-March 2004 IRI precipitation forecasts (*not pictured)* also indicate slightly increased probabilities (40%) of below-average precipitation for the Southwest, centered over western Arizona for all four forecast periods. 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/

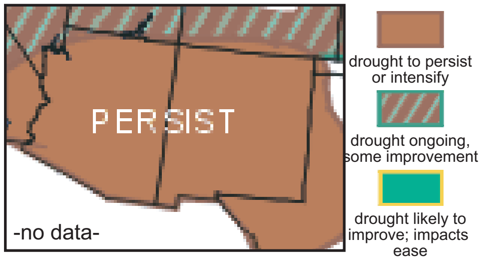
10. Drought: Seasonal Drought and PHDI Outlook Maps ♦ Sources: NOAA-CPC, NCDC

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.

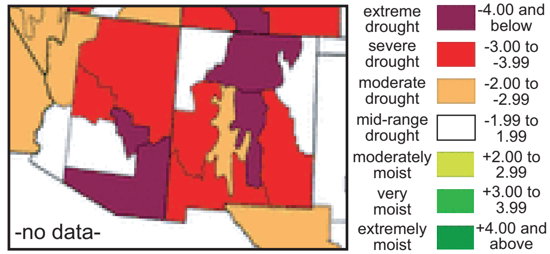
Figures 10b-e are based on the Palmer Hydrological Drought Index (PHDI), which reflects long-term precipitation deficits. PHDI is a measure of reservoir and groundwater level impacts, which take a relatively long time to develop and to recover from drought. Figure 10b shows the current PHDI status for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

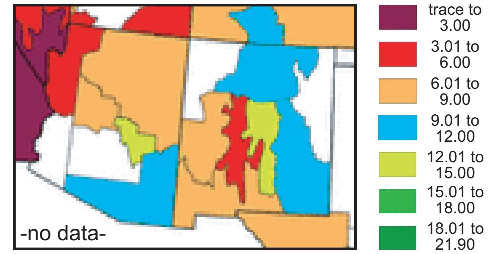
10a. Seasonal drought outlook through December 2003 (accessed 09/18).



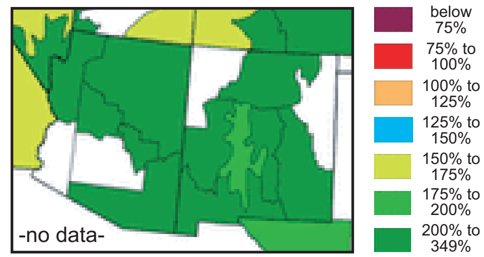
10b. August 2003 PHDI conditions (accessed 09/18).



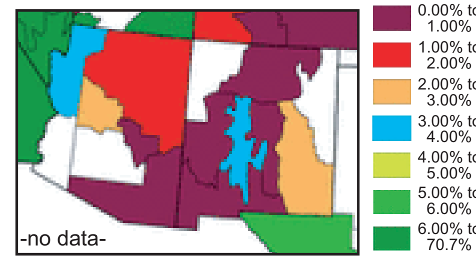
10c. Precipitation (in.) required to end current drought conditions in three months.



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.



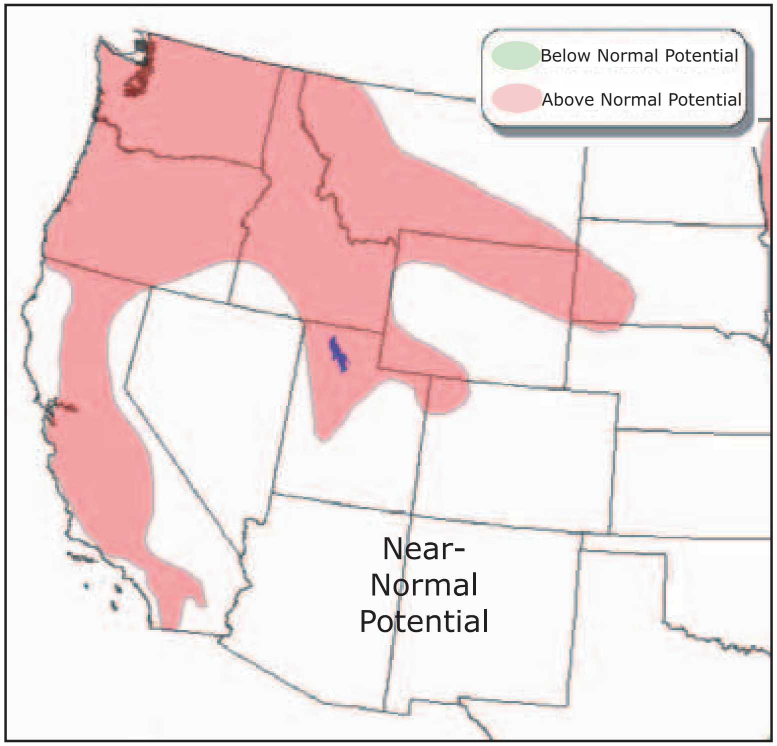
The season in which the precipitation falls greatly influences the amount of precipitation needed to end a drought. For example, during a typically wet season more precipitation may be required to end a drought than during a typically dry season. Also, because soil moisture conditions generally are lower 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).

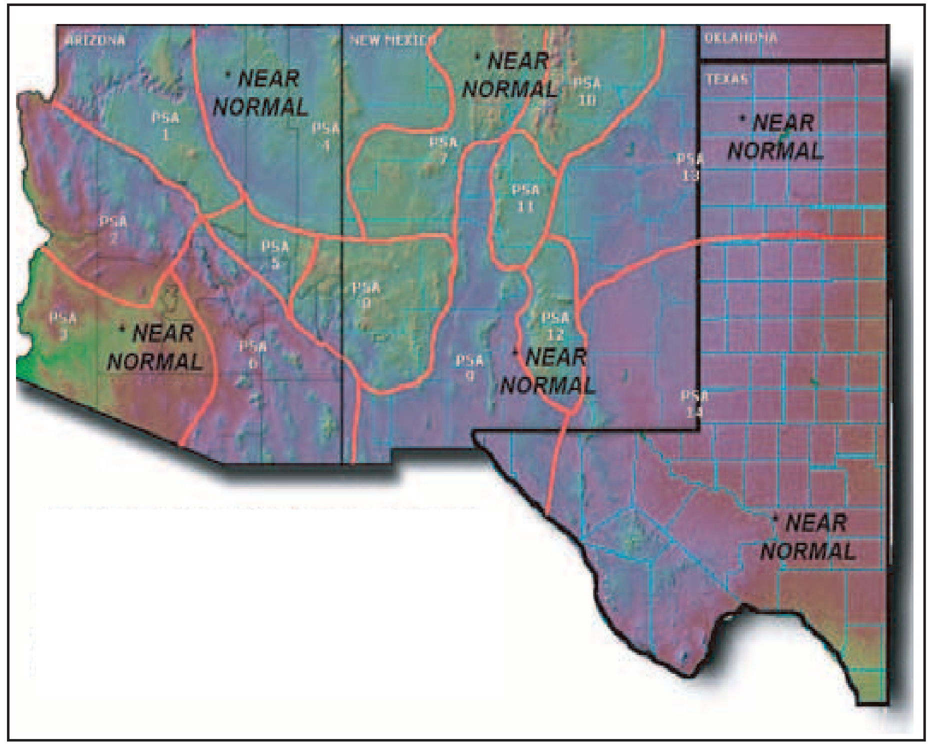
For more information, visit: http://www.drought.noaa.gov/ —and— http://www.ncdc.noaa.gov/oa/climate/research/drought/drought.html

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

11a. Monthly Wildfire Outlook (valid September 1 - 30)



11b. Weekly Fire Danger Outlook (valid September 9 - 18)



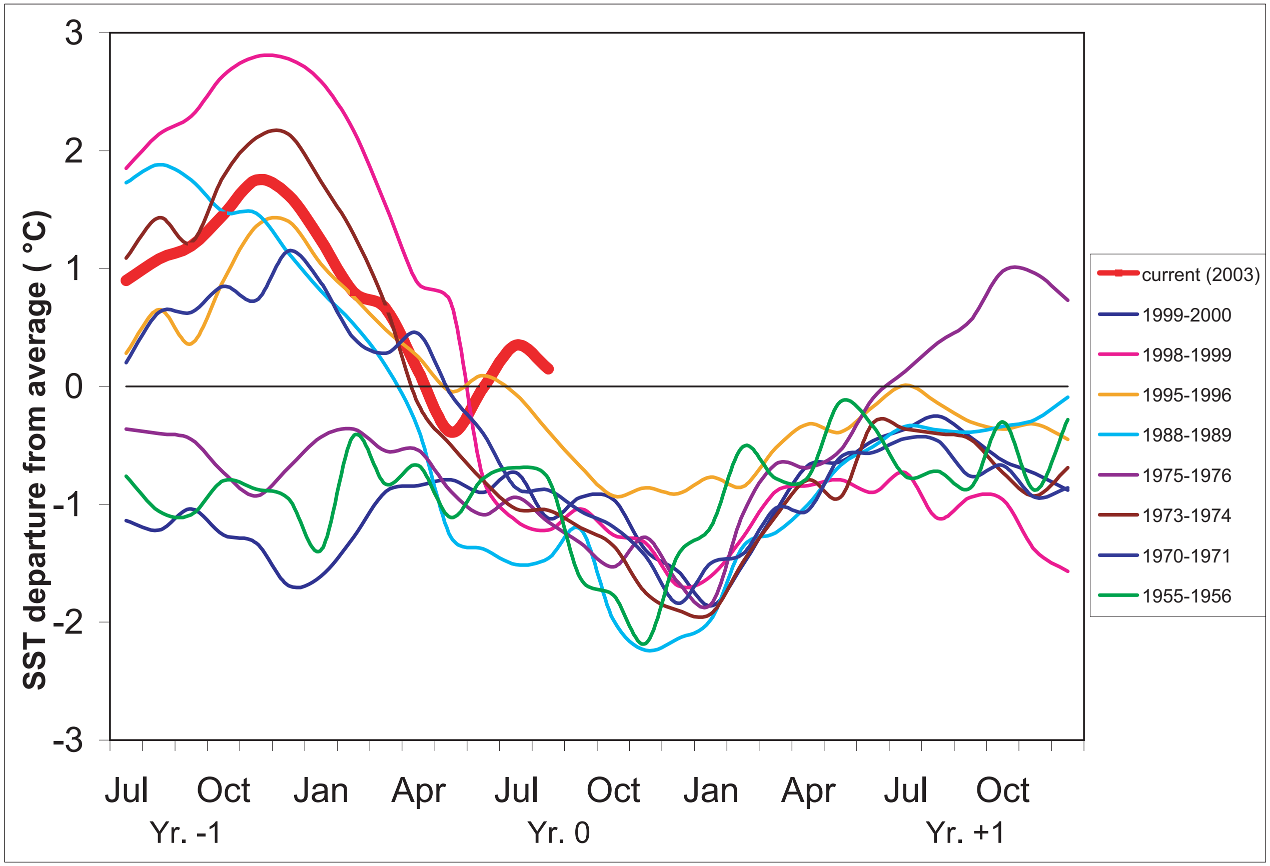
Notes: The National Interagency Coordination Center (NICC) at the National Interagency Fire Center (NIFC) produces seasonal and monthly (Figure 11a) wildland fire outlooks. These forecasts consider climate forecasts and surface-fuels conditions to assess fire potential. They are subjective assessments, 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 September 1-30, 2003 NICC wildfire outlook is for near-normal fire potential for Arizona and New Mexico. Observed 100-hour and 1000-hour fuel moisture readings for the Southwest (*not pictured*) indicate relatively low fuel moisture in northern Arizona in northwestern New Mexico. The remnants of Tropical Storm Marty should decrease short-term fire danger across southern and central Arizona.

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 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).

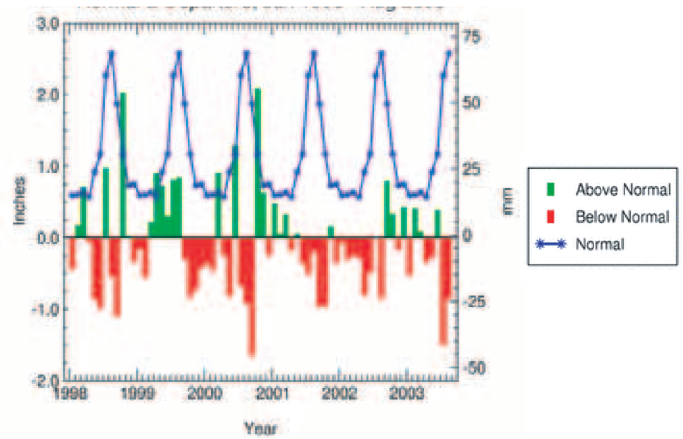
The most recent SST departures are plotted as a thick red line. The magnitude of the SST departure, its timing during the seasonal cycle, and its exact location in the equatorial Pacific Ocean are some of the factors that determine the degree of impacts experienced in the Southwest.

Highlights: Sea-surface temperatures (SSTs) are near neutral 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 70-80% likelihood 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 forecast models project neutral conditions for the remainder 2003 and early 2004. Near-neutral conditions in the equatorial and tropical Pacific Ocean introduce considerable uncertainty with regard to long-range climate forecasts.

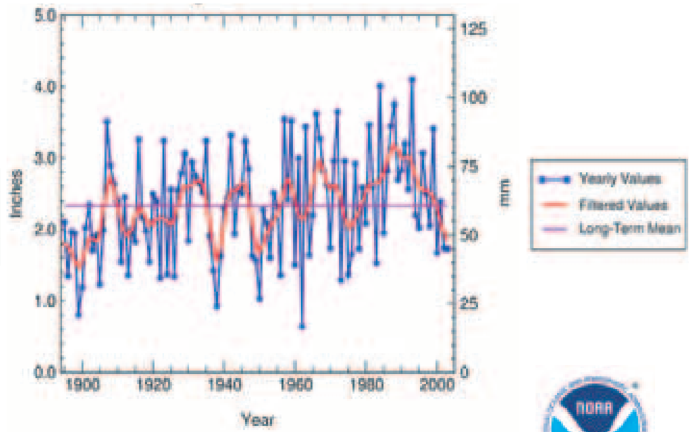
For a technical discussion of current El Niño conditions, visit: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/
For more information about El Niño and to access the graphics found on this page, visit: http://iri.columbia.edu/climate/ENSO/

13. New Mexico Statewide-Regional Moisture Status ♦ Sources: NCDC

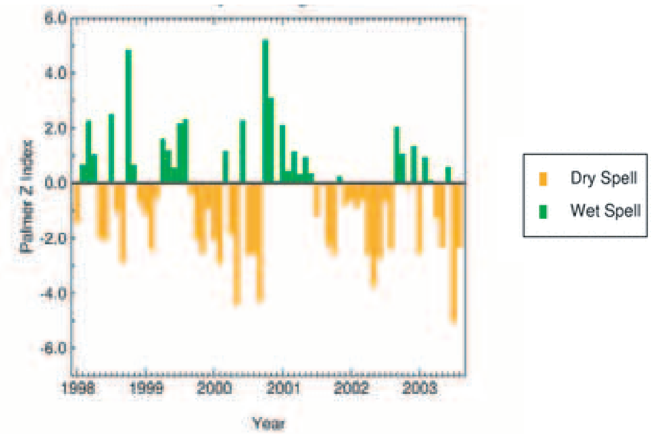
13a. New Mexico Statewide Precipitation, Normal & Departure for January 1998 - August 2003



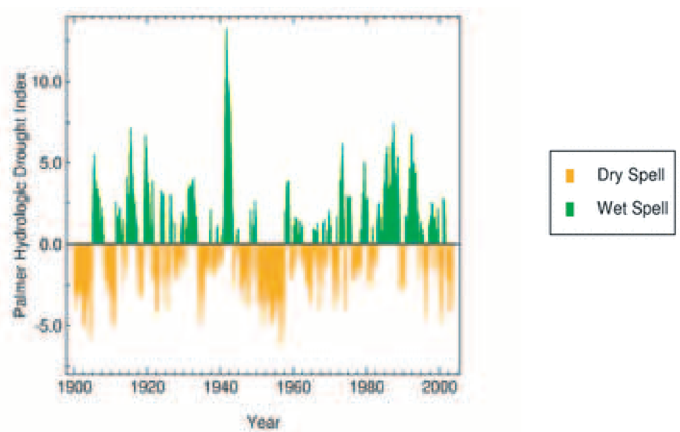
13b. New Mexico Statewide Precipitation for the month of August between 1895 - 2003



13c. New Mexico Statewide Palmer Z Index for January 1998 - August 2003



13d. New Mexico Statewide PHDI* for January 1900 - August 2003



Highlights: The National Climatic Data Center (NCDC) offers statewide and regional moisture status information (available at http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/state-reg-moisture-status.html) for each of the lower 48 states, as well as 9 multi-state climatic regions. The statewide moisture status web pages also provide tables displaying the rank of statewide precipitation for several multi-month periods. The information presented compares current moisture levels to long-term historical averages. In recent years, New Mexico statewide moisture has frequently been well below average (Figures 13a and 13b). August 2003 was the 28th driest August in the historical record; August New Mexico statewide precipitation was above-average for most of the latter part of the 20th century (Figure 13c). In New Mexico, the 1950s were characterized by an almost continuous state of hydrological drought; the recent drought looks mild in comparison (Figure 13d).

Notes: Statewide values are based on compilation of NOAA climate division data.

Recent statewide precipitation (Figure 13a) is expressed in terms of departure from the 1961-1990 statewide average (*normal*) precipitation (inches on the left axis and millimeters on the right axis). Each bar represents a given month's precipitation. The *normal* line (blue) is consistent from year-to-year, indicating the seasonal cycle of precipitation.

The month of interest's long-term variation (Figure 13b) is expressed in terms of departure from the 1895-2002 average for that month. The blue line represents the observed value for that month in each year. The red line shows longer-term variation; values have been averaged using a 9-year binomial filter, which gives greater emphasis to the middle years of a 9-year sequence than to the end years.

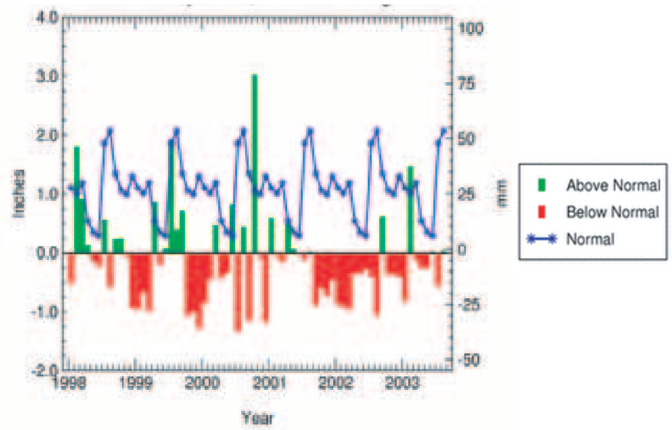
The Palmer Z index (Figure 13c) combines temperature, precipitation, and soil moisture information to measure short-term (monthly) drought.

The Palmer Hydrological Drought Index (PHDI; Figure 13d) combines temperature, precipitation, and soil moisture information to measure long-term (multi-year) drought.

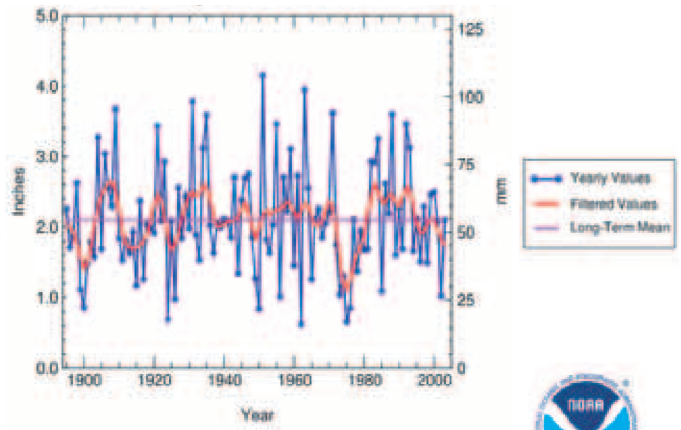
More information on the Palmer drought indices is available at http://www.ncdc.noaa.gov/oa/climate/research/drought/background.html#define.

14. Arizona Statewide-Regional Moisture Status ♦ Sources: NCDC

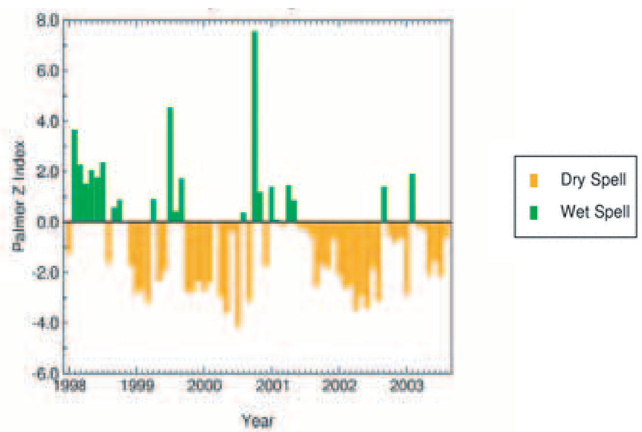
14a. Arizona Statewide Precipitation, Normal & Departure for January 1998 - August 2003



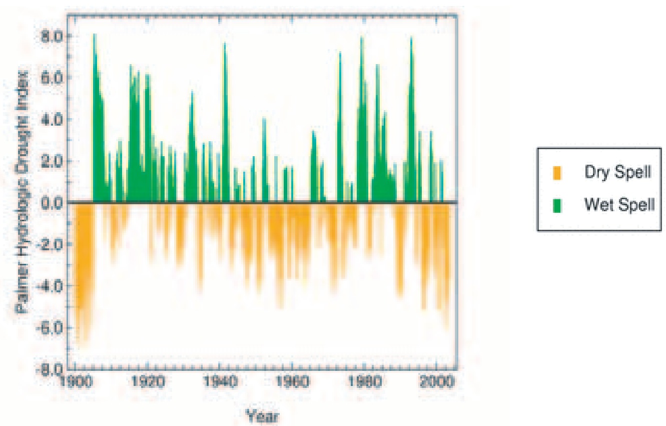
14b. Arizona Statewide Precipitation for the month of August between 1895 - 2003



14c. Arizona Statewide Palmer Z Index for January 1998 - August 2003



14d. Arizona Statewide PHDI* for January 1900 - August 2003



Highlights: The National Climatic Data Center (NCDC) offers statewide and regional moisture status information (available at http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/state-reg-moisture-status.html) for each of the lower 48 states, as well as 9 multi-state climatic regions. The statewide moisture status web pages also provide tables displaying the rank of statewide precipitation for several multi-month periods. The information presented compares current moisture levels to long-term historical averages. In recent years, Arizona statewide moisture has been consistently below average, only occasionally punctuated by above average months (Figures 14a and 14b). August 2003 precipitation was approximately average, and August precipitation in the 1980s-early 1990s was much greater than August precipitation during most of the 1970s (Figure 14c). Statewide PHDI values since mid-1998 have been among the lowest in the instrumental record.

Notes: Statewide values are based on compilation of NOAA climate division data.

Recent statewide precipitation (Figure 14a) is expressed in terms of departure from the 1961-1990 statewide average (*normal*) precipitation (inches on the left axis and millimeters on the right axis). Each bar represents a given month's precipitation. The *normal* line (blue) is consistent from year-to-year, indicating the seasonal cycle of precipitation.

The month of interest's long-term variation (Figure 14b) is expressed in terms of departure from the 1895-2002 average for that month. The blue line represents the observed value for that month in each year. The red line shows longer-term variation; values have been averaged using a 9-year binomial filter, which gives greater emphasis to the middle years of a 9-year sequence than to the end years.

The Palmer Z index (Figure 14c) combines temperature, precipitation, and soil moisture information to measure short-term (monthly) drought.

The Palmer Hydrological Drought Index (PHDI; Figure 14d) combines temperature, precipitation, and soil moisture information to measure long-term (multi-year) drought.

More information on the Palmer drought indices is available at http://www.ncdc.noaa.gov/oa/climate/research/drought/background.html#define.