January 17, 2003

MONTHLY REPORT

DROUGHT MONITORING COMMITTEE

BY

DAVID A. LUCERO

Leader of Committee

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Drought Status for January, 2003

National Weather Service, Albuquerque, NM

Discussion: Consistent with El Niño, the majority of New Mexico has experienced above normal precipitation for the autumn and early winter (September-December). Water year precipitation is 121 percent of normal through December, with only division 5 (Central Valley) below normal. The late-year (beginning September 8) precipitation helped pull the 2002 calendar year precipitation up to 88 percent of normal for the state. This average had been as low as 40 to 50 percent the first half of 2002. However, some locations with the worst drought conditions experienced precipitation deficits as great as 4 to 6 or more inches in 2002. Coupled with deficits over the past few years, the multi-year accumulated deficits are allowing the hydrologic drought to linger and provides significant potential for worsening, especially over the western and central portions of New Mexico.

Palmer Index (monthly average) for 2002

Div.	Jul	Aug	Sep	Oct	Nov	Dec
1	-5.0	-4.7	-1.6	+0.3	+2.3	+3.0
2	-6.3	-6.7	-5.0	-3.0	-0.6	+0.2
3	-2.8	-3.1	-0.7	+1.1	+2.2	+2.4
4	-4.0	-3.2	-0.7	+0.4	+1.3	+2.3
5	-2.3	-0.3	+1.7	+2.6	+2.7	+2.6
6	-4.0	-3.9	-3.0	-2.4	-1.2	-0.2
7	-1.7	-2.2	-0.6	+0.6	+1.6	+2.0
8	-2.3	-0.8	-0.4	-0.2	-0.2	+0.4

Both the PDSI and SPI (less than 12 month) indicate some improvement in soil conditions should have occurred because of the late 2002 precipitation. However, these shorter-term indices do not accurately portray the longer-term, hydrological aspects of drought. A long-term SPI should be employed to accurately depict the hydrological state of drought. Presently, the longer term SPI shows multi-year deficits (2 to 5 years) averaging 5 to 10 inches in division 2 (northern mountains). Here are some 2 and 5 year anomalies for a few locations around the state (inches):

Location	2 year	5 year
Albuquerque	-4.13	- 3.30
Animas	-4.67	- 7.98
Chama	-6.56	- 4.24
Cimarron	-8.80	+ 1.02
Clayton	-9.53	-10.54
Clovis	-2.14	- 4.65
Deming	-3.24	- 1.68
Gila Hot Springs	-7.46	-15.35
Jemez Springs	-10.44	-15.40
Las Vegas	-11.42	-16.76
Los Alamos	-10.53	-18.31
Navajo Dam	-7.90	- 5.81
Raton	-9.65	- 7.59

Roswell	-3.72	- 3.05
Ruidoso	-6.18	-11.88
Santa Fe	-7.48	-10.72
Tatum	-1.99	- 6.64
Wolf Canyon	-6.94	-12.16

Some of these locations show conditions that are quite a bit different from the divisional averages. Climate Division averages (using over 150 stations) show the following (inches from normal):

Division	12 month	24 month	36 month	48 month	60 month
1	-1.4	-2.1	-2.6	-2.5	-0.2
2	-3.8	-7.1	-9.0	-6.9	-7.2
3	-2.2	-3.9	-3.8	-0.3	-0.6
4	-0.7	-0.1	+0.1	+0.5	+2.4
5	+0.5	-0.4	+1.3	+2.6	+3.9
6	-2.1	-4.6	-4.4	-5.5	-4.6
7	+0.3	-3.4	-3.9	-2.6	-5.8
8	-1.0	-3.2	-1.8	-0.9	-0.8

Calendar Year 2002 and Water Year 2003 (thru Dec) Precipitation for New Mexico

National Weather Service Albuquerque, NM

	2002 (Jan - Dec)				Water Year 2003 (Oct - Dec 02)		
Location	**Obs**	**Normal**	**%Normal**		**Obs**	**Normal**	**% Normal**
Northwest Plateau							
AZTEC RUINS N/M	7.67	9.90	77%		3.38	2.61	130%
FENCE LAKE	14.60	14.25	102%		4.14	3.25	127%
FRUITLAND 2E	6.36	7.32	87%		2.47	1.96	126%
GALLUP FAA APRT	10.34	11.59	89%		2.09	2.78	75%
LINDRITH 2SE	14.02	14.36	98%		3.47	3.21	108%
NAVAJO DAM	9.02	13.41	67%		3.66	3.60	102%
Northern Mountains							
ALCALDE	10.08	10.03	100%		2.94	2.10	140%
CANJILON R/S	14.39	15.43	93%		3.95	3.17	125%
CERRO	10.02	12.87	78%		2.45	2.48	99%
CHAMA	15.98	21.00	76%		6.35	4.84	131%
CIMARRON 4SW	9.68	16.17	60%		1.76	2.16	81%
GHOST RANCH	8.79	11.56	76%		3.00	2.17	138%
JEMEZ SPRINGS	12.62	17.29	73%		3.45	3.46	100%
JOHNSON RANCH	9.75	11.33	86%		2.91	2.40	121%
LAS VEGAS FAA APRT	10.14	16.68	61%		1.89	2.32	81%
LOS ALAMOS	11.71	18.33	64%		3.83	3.24	118%
RATON KRTN	12.23	17.23	71%		2.69	1.92	140%
RED RIVER	18.10	20.53	88%		3.45	3.83	90%
SANTA FE 2	10.27	14.38	71%		2.82	2.94	96%
WOLF CANYON	17.33	22.93	76%		6.68	4.97	134%
Northeastern Plains							
CLAYTON APRT	10.66	15.50	69%		2.27	1.96	116%

CLOVIS	16.49	17.89	92%		4.51	2.90	156%
CONCHAS DAM	15.95	14.10	113%		3.30	2.04	162%
MOSQUERO 1NE	13.40	16.53	81%		2.71	2.15	126%
PORTALES	16.39	16.74	98%		4.36	2.54	172%
TUCUMCARI 4NE	15.39	15.95	96%		3.42	2.48	138%
Southwestern Mountains							
FORT BAYARD	16.11	15.73	102%		3.66	3.09	118%
GILA HOT SPRINGS	12.70	16.34	78%		2.08	3.97	52%
GRANTS APRT	9.94	10.60	94%		2.97	2.36	126%
QUEMADO ESTATES	16.73	14.06	119%		3.84	2.65	145%
RESERVE R/S	15.10	15.77	96%		3.62	4.12	88%
Central Valley							
ABQ WSFO APRT	6.39	8.51	75%		1.39	1.75	79%
BOSQUE DEL APACHE	8.37	8.68	96%		1.60	1.90	84%
LOS LUNAS 3SSW	7.84	9.02	87%		1.88	2.07	91%
SOCORRO	10.64	9.60	111%		2.10	2.01	104%
Central Highlands							
CAPITAN	16.06	16.14	100%		4.10	2.23	184%
CLOUDCROFT	28.10	24.96	113%		8.46	4.25	199%
ESTANCIA	8.87	12.61	70%		2.61	2.42	108%
MOUNTAINAIR R/S	11.41	14.27	80%		2.41	2.75	88%
RUIDOSO 2NNE	17.90	21.85	82%		4.62	4.02	115%
Southeastern Plains							
ARTESIA 6S	13.68	11.78	116%		3.87	2.10	184%
CARLSBAD	11.80	12.46	95%		3.05	2.35	130%
FORT SUMNER	15.85	14.46	110%		2.64	2.55	104%
ROSWELL CLIMATE	14.10	12.93	109%		3.33	2.29	145%
SANTA ROSA	13.06	14.17	92%		3.66	2.28	161%
TATUM	16.18	15.94	102%		3.53	2.54	139%
Southern Desert							
ANIMAS	8.15	10.92	75%		3.58	2.46	146%
DEMING	7.96	9.20	87%		3.52	1.92	183%
FAYWOOD	11.94	11.89	100%		2.81	2.75	102%
STATE U LAS CRUCES	7.62	9.34	82%		2.65	2.09	127%
TRUTH OR CONSEQ	5.39	12.08	45%		1.88	3.32	57%
TULAROSA	11.24	9.81	115%		4.39	2.07	212%

Divisional Averages

	2002 (Jan - Dec)				**Water Year 2003 (Oct - Dec 02)**		
Climate Division		**% Nrml**				**% Nrml**	
Northwest Plateau		88%				110%	
Northern Mountains		76%				115%	
Northeastern Plains		91%				146%	
Southwestern Mountains		97%				100%	
Central Valley		93%				90%	
Central Highlands		92%				142%	
Southeastern Plains		104%				142%	
Southern Desert		83%				129%	

All Divisions		88%				121%	

Long-range Forecast and Discussion: El Niño is likely to enhance precipitation during the late winter and spring. However, models indicate demise of this El Niño is likely by summer. Consequently, through spring, some continued improvement in the meteorological and agricultural drought aspects are likely. The hydrologic drought outlook is more complicated. With a wet spring in the east, the hydrologic drought over that section of the state could show some improvement. However, a wet spring over the western portion of the state is not likely to lead to much improvement, and worsening of the hydrologic drought over the west and central sections of New Mexico is possible.

FSA Drought Actions

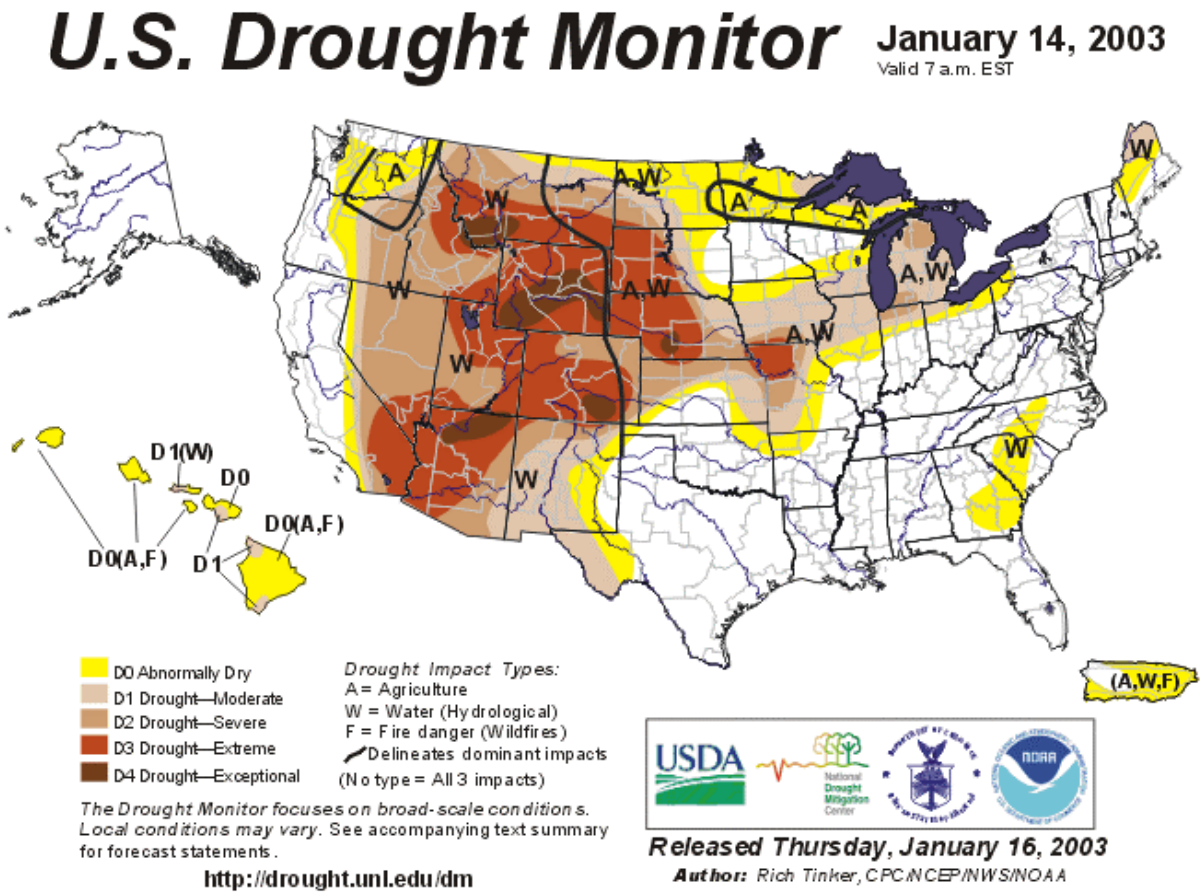
The Farm Service Agency (FSA) implemented the Emergency Conservation Program in 24 counties in New Mexico. Payments in the amount of **$544,871** have been issued as of December 31, 2002.

The Secretary of Agriculture's disaster designation makes low interest loans available to all eligible producers statewide. FSA Emergency loans are offered to farmers and ranchers who have suffered a qualifying "physical loss" (such as a water shortage) or who have suffered at least a 30% loss in crop production.

On October 1, 2002, all County FSA offices in New Mexico began accepting applications for the new Livestock Compensation Program (LCP). LCP is available in 32 counties in New Mexico (the exception is Los Alamos) that were designated primary disaster areas for drought in 2001 or 2002. LCP provides immediate assistance to cattle, sheep, goat, and buffalo producers who have been struck by severe drought conditions for livestock owned for 90 days or more before and/or after June 1, 2002. $752 million dollars is available nationwide. The signup ended December 13, 2002. **4,691 applications** have been paid under the program thus far totaling **$13,789,053**.

USDA Forest Service

Southwestern Region, R3
Drought Update
January 17, 2003



Author: Rich Tinker, Climate Prediction Center / NCEP / NWS / NOAA

The 2002 calendar year brought record or near-record dryness to several locations across the Rockies and Intermountain West. At least 10 cities set new calendar year precipitation records, including Phoenix, AZ (2.82", tying 1956) and Denver, CO (7.48", besting the 7.51" measured in 1954). Yuma, AZ recorded only 0.03" of precipitation for the year, which was less than 15% of their previous record low (0.25" in 1956).

In addition, some extraordinary statewide-average year and multi-year precipitation amounts were reported. Since records began in 1895, 2002 was the driest year ever in Colorado, and the 3rd or 4th driest in 108 years for Nevada, Arizona, Wyoming, and Nebraska. Also, Wyoming experienced record dryness for the 2-, 3-, and 4-year periods ending 2002 while the 3- and 4-year periods were the 2nd driest on record for Idaho.

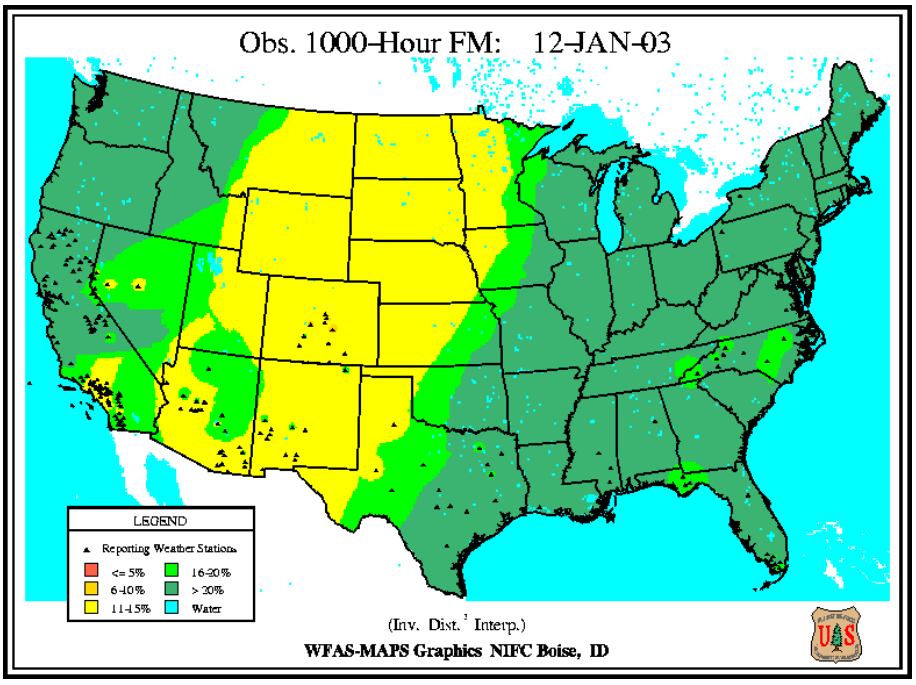
The dryness has drawn down reservoirs throughout the region. Statewide storage totals for major reservoirs at the end of December were below half of normal for the date in Nevada and New Mexico, and only slightly more than 50% of normal in Oregon, Arizona, Utah, and Colorado. Portions of Idaho and Montana have similar conditions, but statewide storage totals across the northern tier of the West are a bit higher than they are farther south.

The mid-point of the October-April snowpack recharge season is quickly approaching, and many areas across the West and Rockies need to start receiving heavier and more-regular precipitation soon to avoid serious drought impacts during the ensuing summer and autumn.

Wildland Fire Season May Be Severe in 2003, Depending on Winter Rainfall.

Larger size forest fuels condition will be critical factor for fire season.

The larger size fuel classes (limbs, branches, downed logs) are dryer than they normally are at mid-winter, and it is these fuels that have the potential to create very extreme "crown fires" that propagate from treetop to treetop, and are extremely destructive and dangerous.



The map shows the conditions of these fuels, referred to as "1000-hour" fuels, meaning that it takes them about 1000 hours (around 40 days or so) to change their moisture content significantly in response to changing weather conditions. These larger fuels are in marked contrast to the smaller "fine" fuels like grass, leaves, and pine needles, which can change their moisture content in a matter of only a few days or hours.

When the 1000-hour fuel moisture contents are down as low as 10-15%, the potential for very large fires becomes extreme. As the map shows, the moisture content of these larger fuels throughout much of the state is down below 15%, and the rest below 20%. This is a relatively dry condition for mid-January, and unless we get a lot more moisture this winter these fuels will dry out to very low levels by late spring or early summer.

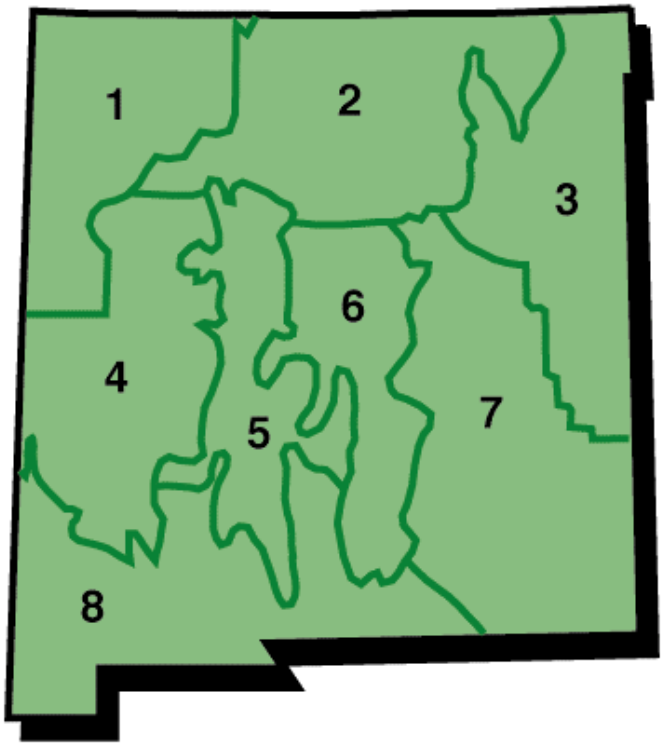
The spring grass crop may be drying out earlier than normal, if the climate forecast for above normal temperatures for the winter through the summer is correct. There is a very large amount of dead fuel in the brush fields at mid-elevations throughout the state. Severe drought-related mortality has produced these dead fuels, including manzanita, pinyon pine, and oaks.

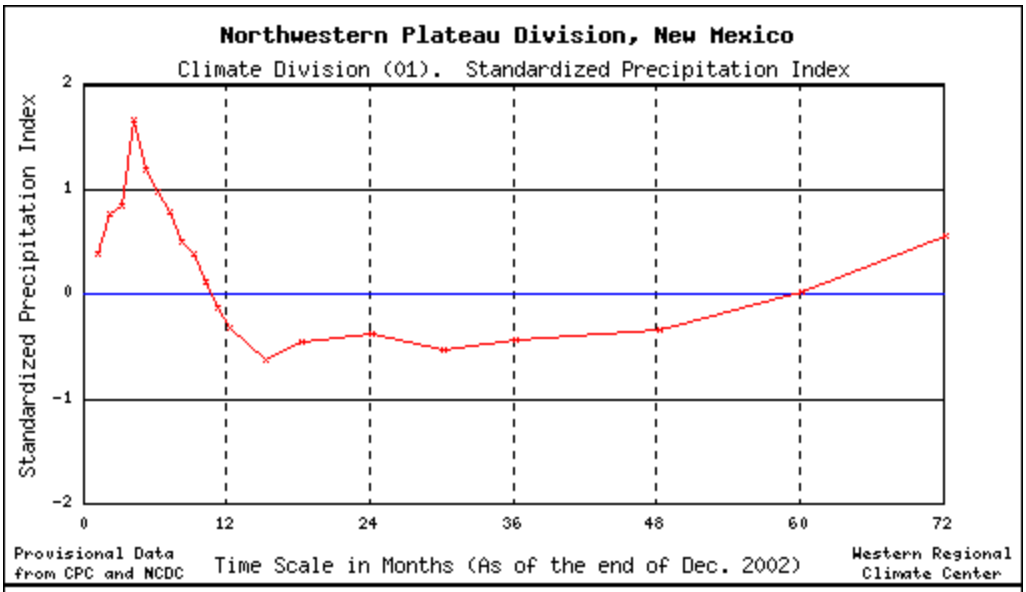
Bark beetle infestations have also contributed to large amounts of dead ponderosa pine. (See map on next page.)

Possibly the "worst case scenario" would be that we receive a moderate amount of rain and snow over the next three months (fairly likely), enough to grow a good crop of grass, but not enough to thoroughly moisten up the forest soils and the 1000-hour fuels. Then when these grasses dry out during our very predictable arid "fore-summer drought" months of May and June, they will provide excellent ignition and propagation sources for large fires in the dry and abundant larger size fuels.

As in 2002, the fire season for 2003 has the potential to be extremely severe, with the potential for development of very dangerous conditions in the very widespread parts of the state where the wildland environment interfaces with the urban environment.

It may well take several years for the Arizona forests and woodlands to recover from the drought, even if we get adequate or even abundant rainfall, because trees that have been drought-stressed for several years are not as able to take advantage of rainfall when it does occur as well as they can when they have not been under prolonged drought stress.




Northwestern Plateau Division, New Mexico
Climate Division (01). Standardized Precipitation Index
Standardized Precipitation Index
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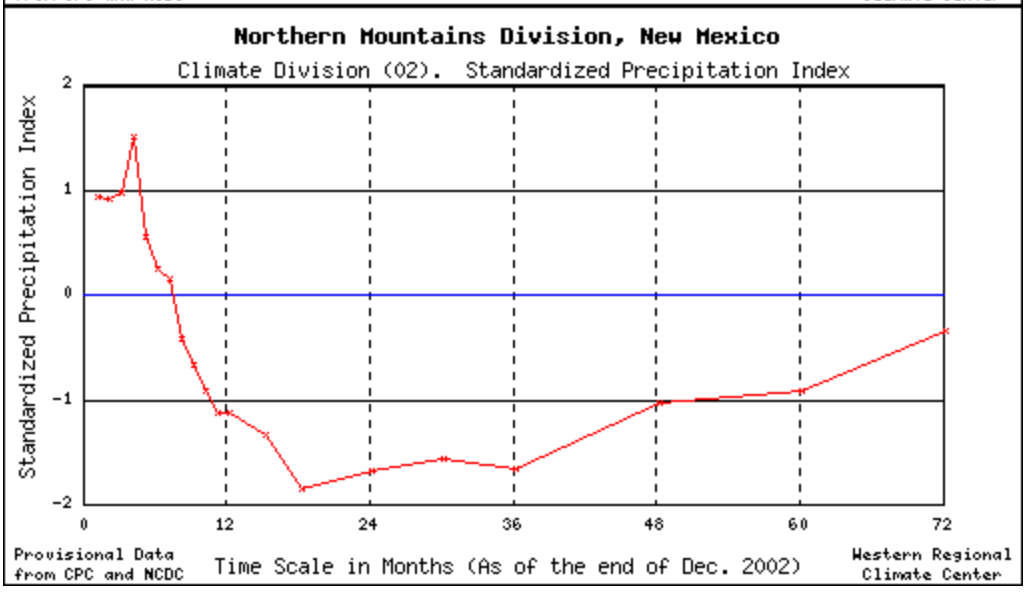
Provisional Data from CPC and NCDC
Time Scale in Months (As of the end of Dec. 2002)
Western Regional Climate Center


Northern Mountains Division, New Mexico
Climate Division (02). Standardized Precipitation Index
Standardized Precipitation Index
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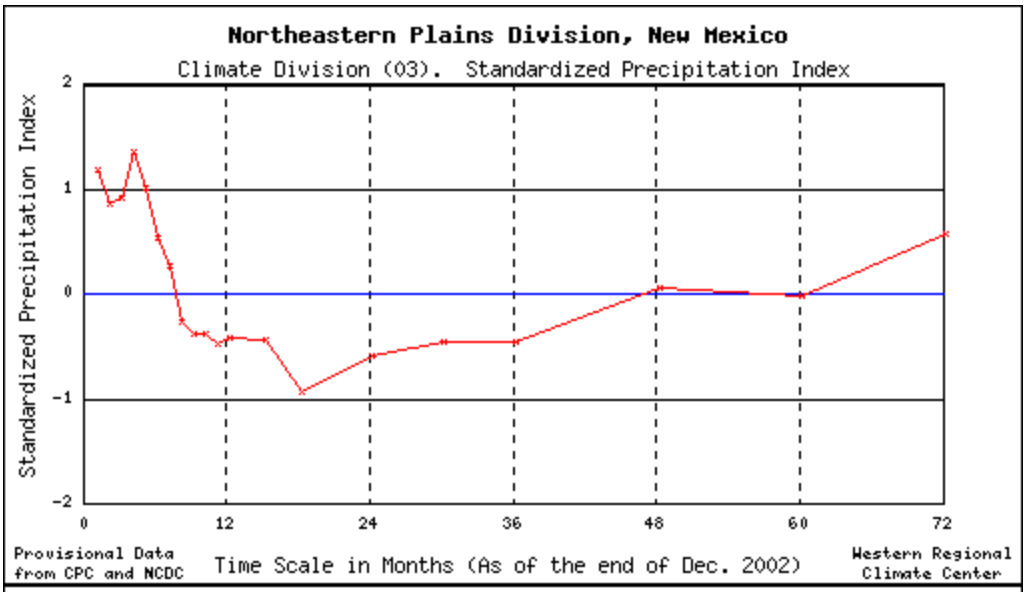
Northeastern Plains Division, New Mexico
Climate Division (03). Standardized Precipitation Index
Standardized Precipitation Index
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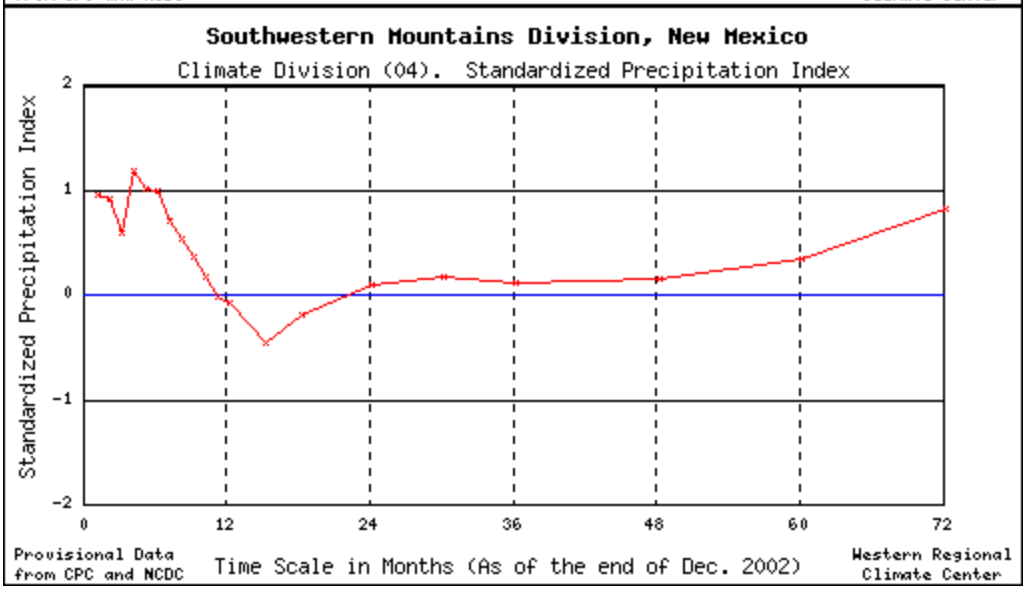
Southwestern Mountains Division, New Mexico
Climate Division (04). Standardized Precipitation Index
Standardized Precipitation Index
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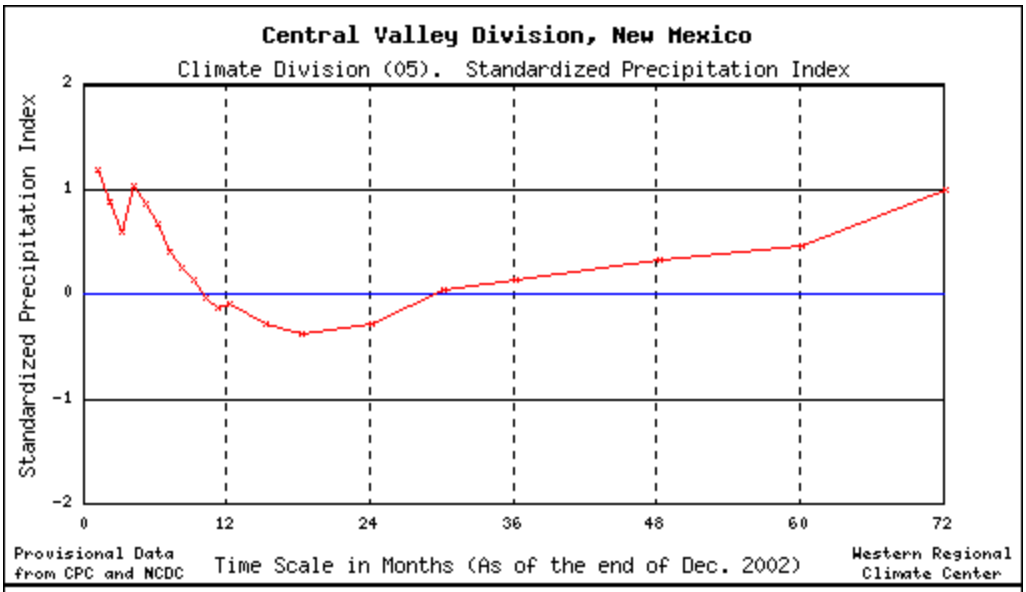
Time Scale in Months (As of the end of Dec. 2002)
Western Regional Climate Center


Central Valley Division, New Mexico
Climate Division (05). Standardized Precipitation Index
Standardized Precipitation Index
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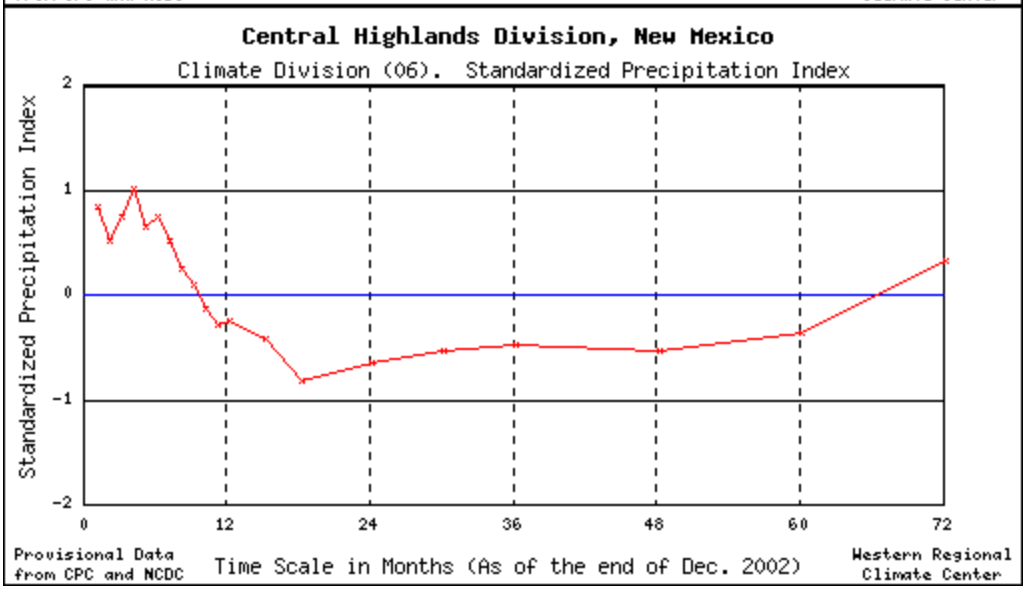
Provisional Data from CPC and NCDC
Time Scale in Months (As of the end of Dec. 2002)
Western Regional Climate Center


Central Highlands Division, New Mexico
Climate Division (06). Standardized Precipitation Index
Standardized Precipitation Index
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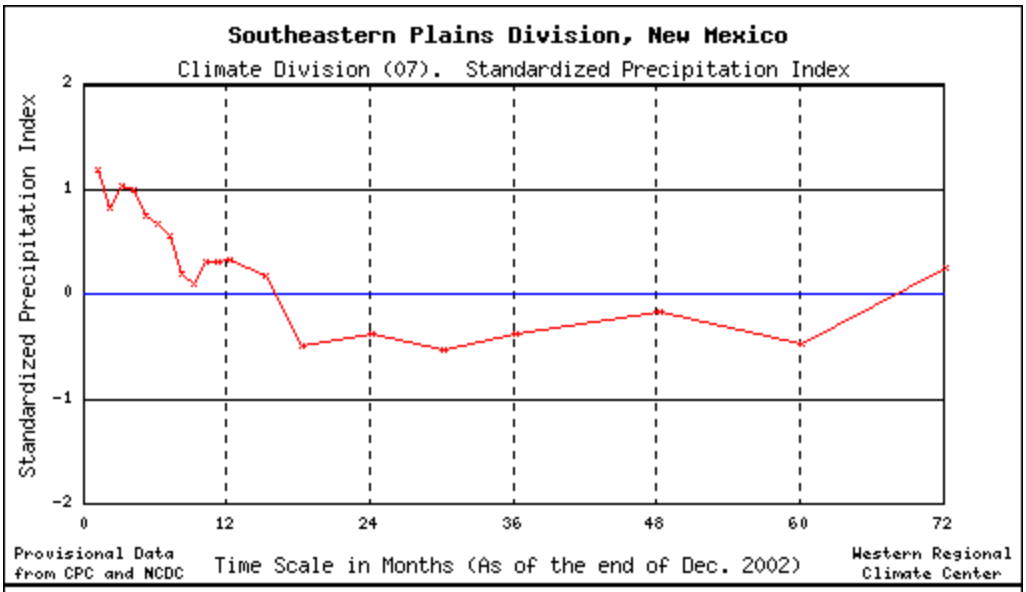
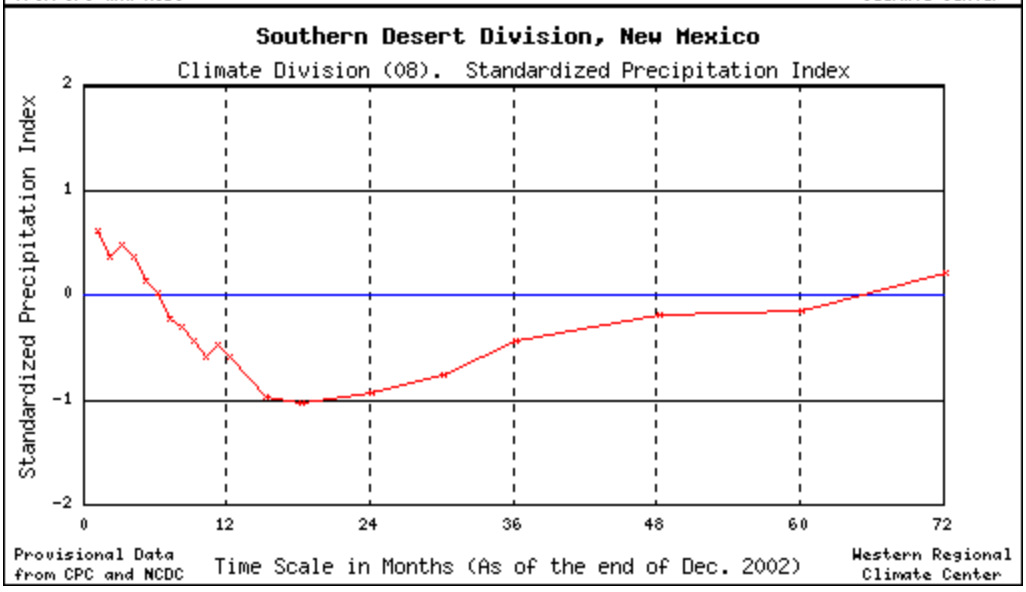




USDA-NRCS submitted the following report

Mountain Precipitation

High elevation precipitation for the water year varies between 50 and 110 percent of average across the state. The southwest basins including San Francisco, Gila and Mimbres are well below average. Total precipitation in the Sangre de Cristo Mountains, Jemez , Pecos and Zuni/Bluewater basins is near average.
December 2002 SNOTEL precipitation indicates the San Juan/Animas Basin was well below average at 65 percent, and the Rio Grande and Pecos were below average at 82 and 85 percent. The rest of the SNOTEL basins (Canadian, San Francisco/Upper Gila, and Zuni/Bluewater) were all average and above with 90, 97 and 186 percent of averages.

As of MONDAY: JANUARY 13 , 2003

Basin	Year-to-Date Precipitation Percent of Average
RIO CHAMA RIVER BASIN	84%
SANGRE DE CRISTO MOUNTAIN RANGE BASINS	93%
JEMEZ RIVER BASIN	105%
SAN FRANCISCO RIVER BASIN	65%
GILA RIVER BASIN	50%
MIMBRES RIVER BASIN	56%
PECOS RIVER BASIN	110%
SAN JUAN RIVER HEADWATERS	80%
ANIMAS RIVER BASIN	84%
CIMARRON RIVER BASIN	87%
ZUNI/BLUEWATER RIVER BASIN	109%
RIO HONDO BASIN	*

Legend: <70% | 70-90% | 91-110% | 111-130% | >130%

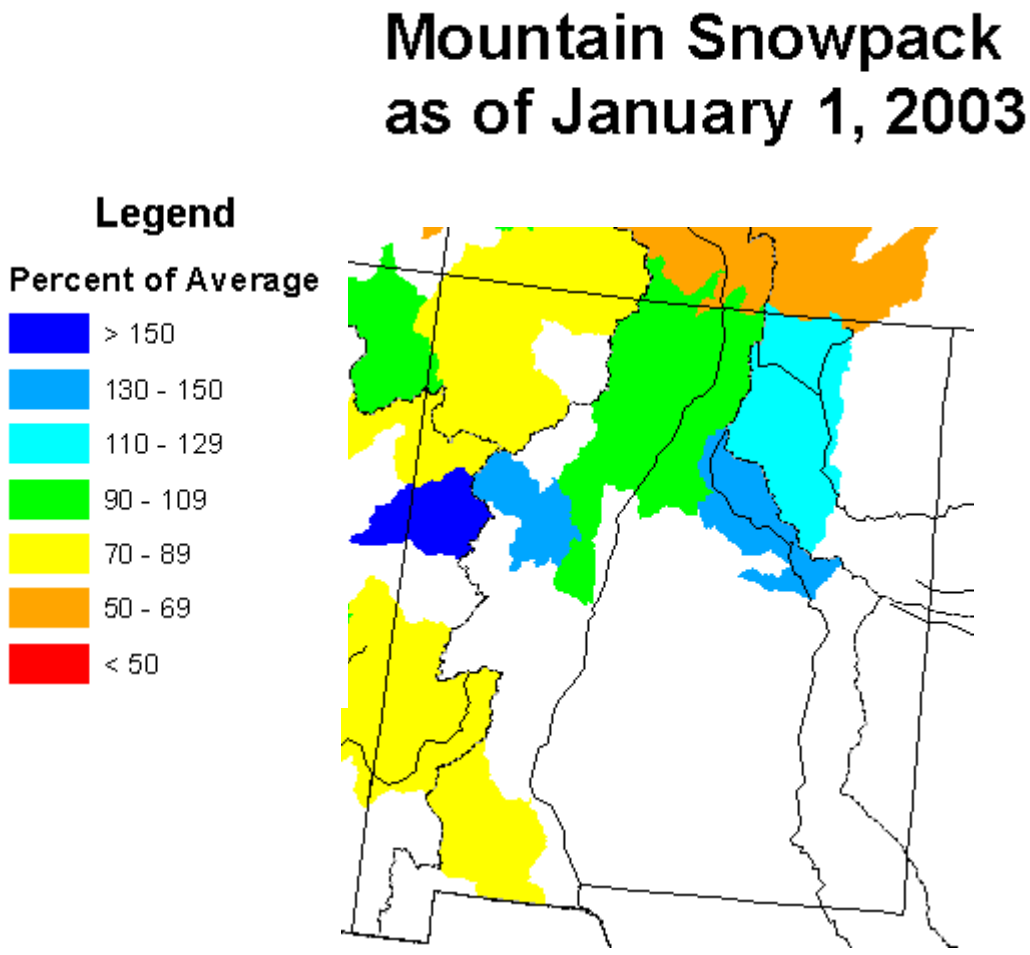
SURFACE WATER SUPPLY INDEX

Basin	Condition	Index
Canadian	Severe Drought	-3.2
Bluewater	Moderate Drought	-1.7
Mimbres	Normal	-0.5
Rio Hondo	Normal	0.0
Zuni	Normal	1.0
Pecos	Severe Drought	-3.1
Rio Grande	Moderate Drought	-2.0
San Juan	Severe Drought	-3.1
San Francisco Upper Gila	Normal	0.3

The Surface Water Supply Index (SWSI) is a predictive indicator derived for each major basin, which generally expresses the water availability for the spring and summer water use season. The components used in computing the index are streamflow forecasts (which incorporates snowpack water content, precipitation, soil moisture, and current streamflow conditions) and current reservoir storage.

Snowpack

Statewide the snowpack on January 1st ranged between 72 and 175 percent of average. The Canadian, Pecos and Zuni/Bluewater basins are all above average. The Rio Grande Basin is near average while the San Francisco/Upper Gila, Mimbres and San Juan basins are all below average.



WATER SUPPLY FORECASTS

THE EXPECTED SPRING SNOWPACK RUNOFF IS FOR MOSTLY AVERAGE AND BELOW AVERAGE CONDITIONS. OF THE FORTY-

FOUR FORECASTS POINTS ACROSS NEW MEXICO; 50 PERCENT ARE FOR BELOW AND WELL BELOW AVERAGE, 40 PERCENT ARE FOR NEAR NORMAL AND 10 PERCENT FOR ABOVE NORMAL.

Basin	General Forecast
Canadian	Blw to Well blw Normal
Bluewater	Above Normal
Mimbres	Normal
Rio Hondo	Well blw Normal
Zuni	Above Normal
Pecos	Normal
Rio Grande	Well blw to Normal
San Juan	Below to Well below Normal
San Francisco Upper Gila	Normal

RESERVOIRS

The total statewide storage in the thirteen major reservoirs is at 44 percent of the 30-year average. This is 53 percent of last years January 1 storage. Nine of the thirteen reservoirs are below 50 percent of what is normally stored

FOR THE END OF DECEMBER 2002 *(Data are provisional and subject to change)*

Reservoir	Current as Percent of Capacity/Average/Last Year	
ABIQUIU	% of Capacity	8%
	% of Average	40%
	% of Last Year	34%
BRANTLEY	% of Capacity	7%
	% of Average	50%
	% of Last Year	123%
CABALLO	% of Capacity	11%
	% of Average	46%
	% of Last Year	173%
COCHITI	% of Capacity	10%
	% of Average	80%
	% of Last Year	97%
CONCHAS	% of Capacity	11%
	% of Average	14%
	% of Last Year	63%
COSTILLA	% of Capacity	14%
	% of Average	44%
	% of Last Year	51%
EL VADO	% of Capacity	6%
	% of Average	11%
	% of Last Year	11%
SUMNER	% of Average	24%
	% of Last Year	93%

The USDA Geological Survey reported the following stream-flow conditions:

STREAMFLOW CONDITIONS FOR SELECTED LOCATIONS IN NEW MEXICO__DROUGHT MONITORING TASK FORCE

BY THE U.S. GEOLOGICAL SURVEY, ALBUQUERQUE, NM

Streamflow conditions for December 2002 improved slightly on unregulated streams throughout New Mexico. The 2003 water year to date (YTD) percent of average streamflow volumes are increasing since November 2002. The YTD streamflow was significantly below average Statewide; of course streamflows were augmented from releases from upstream reservoirs. Pecos River near Pecos for December is about average, whereas the remainder of the streamflow is below and far below average.

Streamflow plots shown below for selected locations in New Mexico show that the daily mean discharge for water year 2003 is below average to significantly below average except for the Animas and Pecos Rivers.

	Streamflow in percent of average---------	
Streamflow-gaging station	December-2002	Water year to date
Arkansas River Basin		
07203000 Vermijo River near Dawson	31	25
07216500 Mora River near Golondrinas	24	20
07221500 Canadian River near Sanchez	9	8
Rio Grande Basin		
08263500 Rio Grande near Cerro	52	36
08269000 Rio Pueblo de Taos near Taos	71	60
08279000 Embudo Creek at Dixon	73	52
08284100 Rio Chama near La Puente	112	64
08313000 Rio Grande at Otowi Bridge	47	44
Pecos River Basin		
08378500 Pecos River near Pecos	99	74
08387000 Rio Ruidoso at Hollywood	--	38 e
08396500 Pecos River near Artesia	77	44
San Juan River Basin		
09364500 Animas River at Farmington	89	76
Gila River Basin		
09430500 Gila River near Gila	38	47
09444000 San Francisco River near Glenwood	62	58

e- estimated
All data provisional