



# The Weather Wire

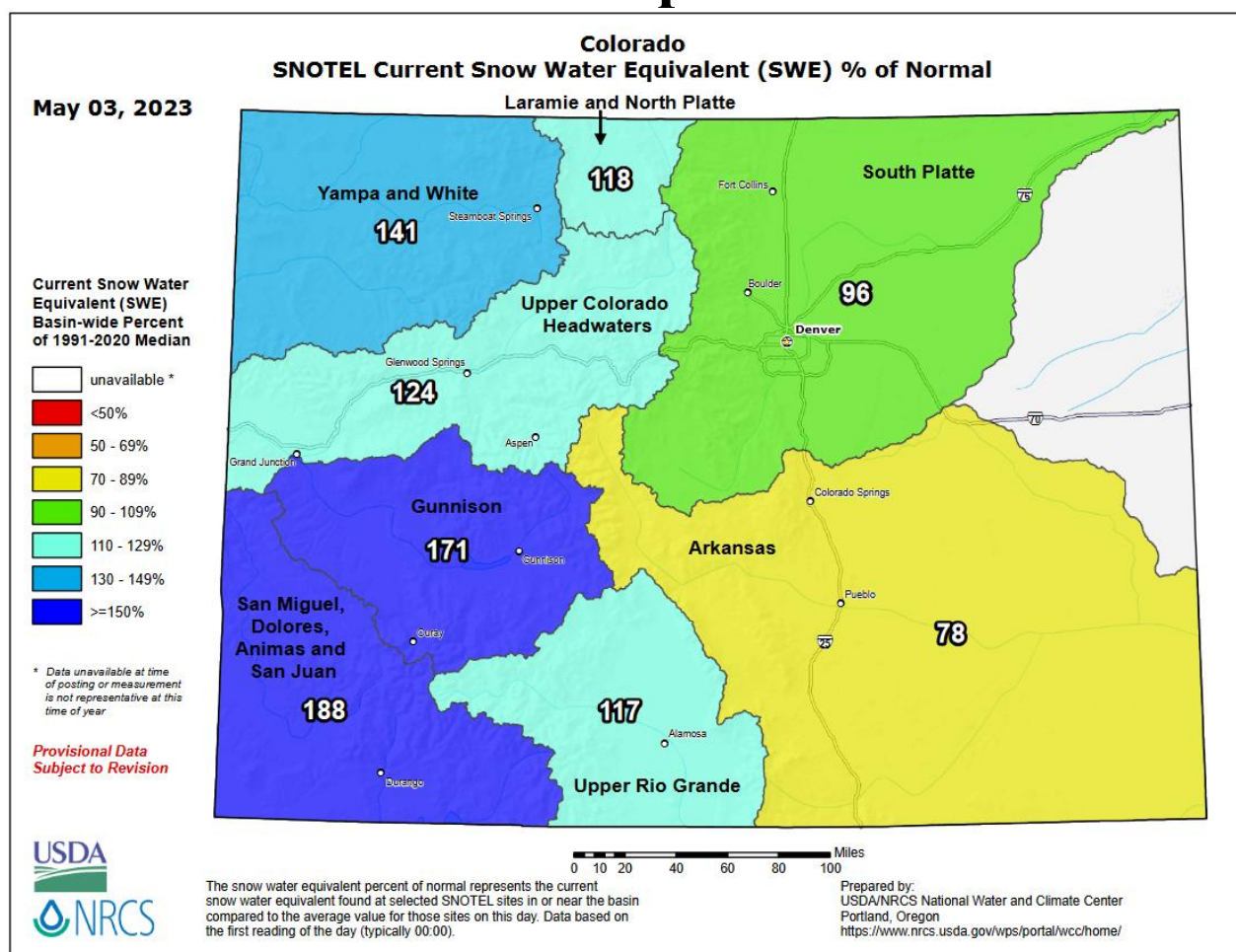
May 2023

Volume 30 Number 5

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## Current Colorado Snowpack



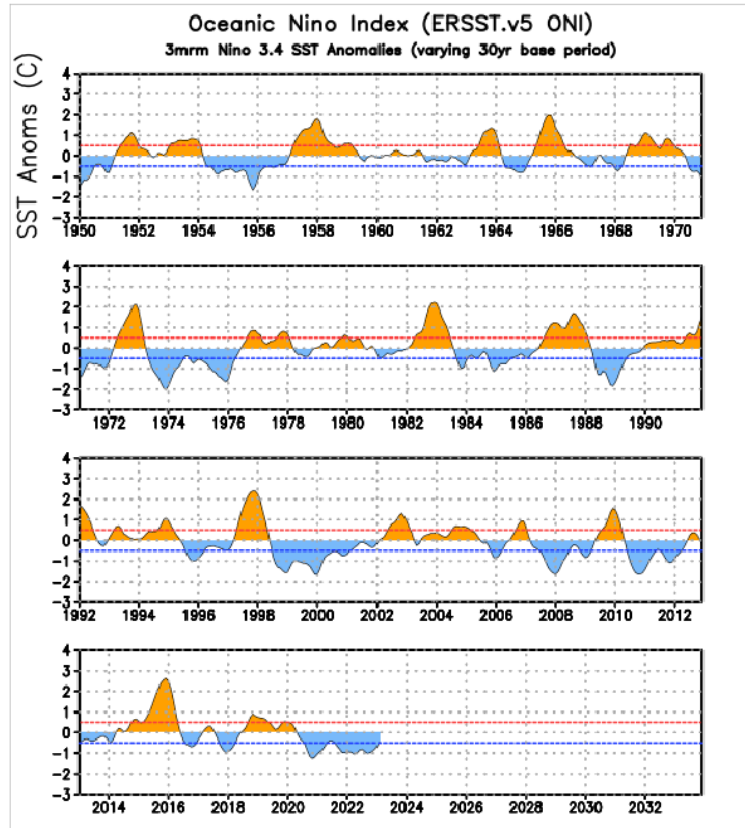
Colorado snowpack is above normal for all river basins west of the Continental Divide. The S Platte River drainage is slightly below normal for this time of year, but the Arkansas River is only 78% of average as of the 3<sup>rd</sup> of May.

# El Nino to Return this Winter!

## ONI (°C): Evolution since 1950

The most recent ONI value (January - March 2023) is -0.4°C.

El Niño ↑  
Neutral  
La Niña ↓



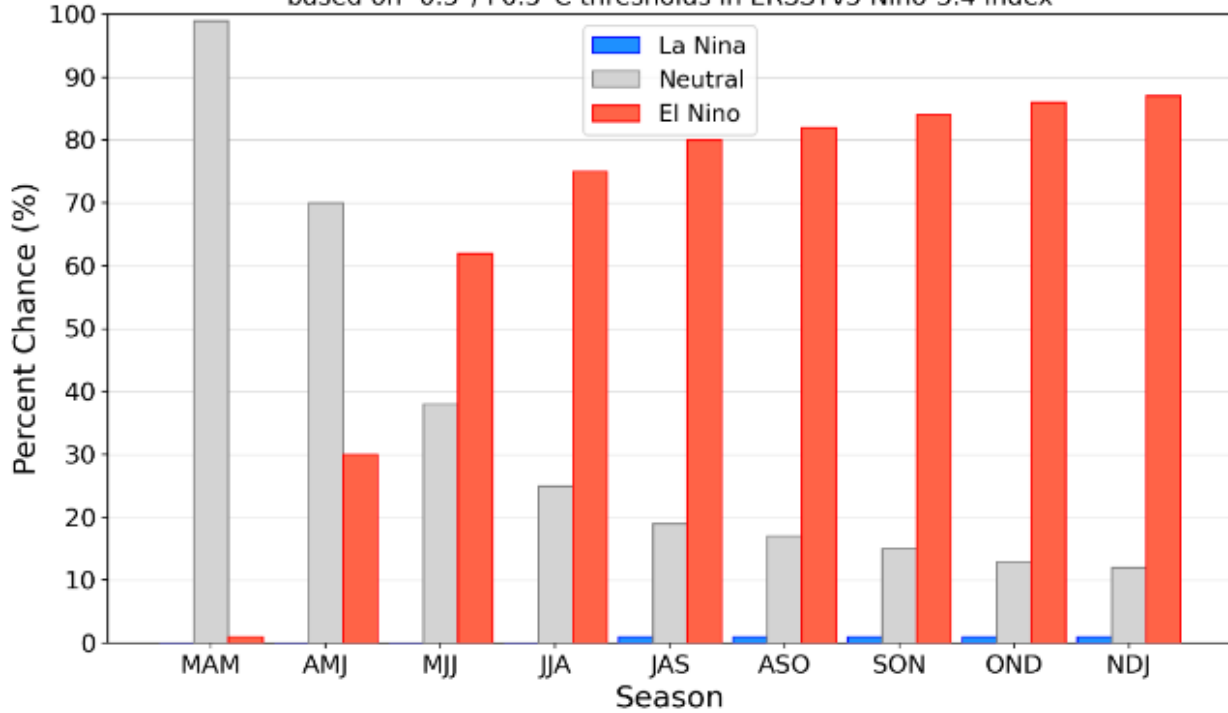
El Nino or ENSO (El Nino Southern Oscillation) is expected to make a return this summer and may impact the snowfall distribution next snow season. Sea surface temperatures over the Pacific Ocean near the equator have been warming and is expected to result in El Nino conditions developing during the month of May or sometime in June. El Nino does not have much of an impact for Colorado in the summer, but it can help to fuel the monsoon season as moisture is drawn northward from the tropics and transported northward. There seems to be a greater impact during the winter season, especially over SW portions of the state enhancing snowfall. The Denver Metro area is more sheltered from El Nino conditions as the continental Divide creates a barrier and much of our moisture over eastern areas of the state actually comes from the Gulf of Mexico versus the Pacific Ocean. However, there does seem to be a correlation with El Nino and potentially above normal snowfall from the Palmer Divide southward. El Nino cycles can persist for 1-3 years on average. The figure below is the official NOAA ENSO probabilities. If you would like to learn more about El Nino (ENSO) or keep up to date on the evolution of the current El Nino cycle the links below are a good start:

[https://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/lanina/enso\\_evolution-status-fcsts-web.pdf](https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf)

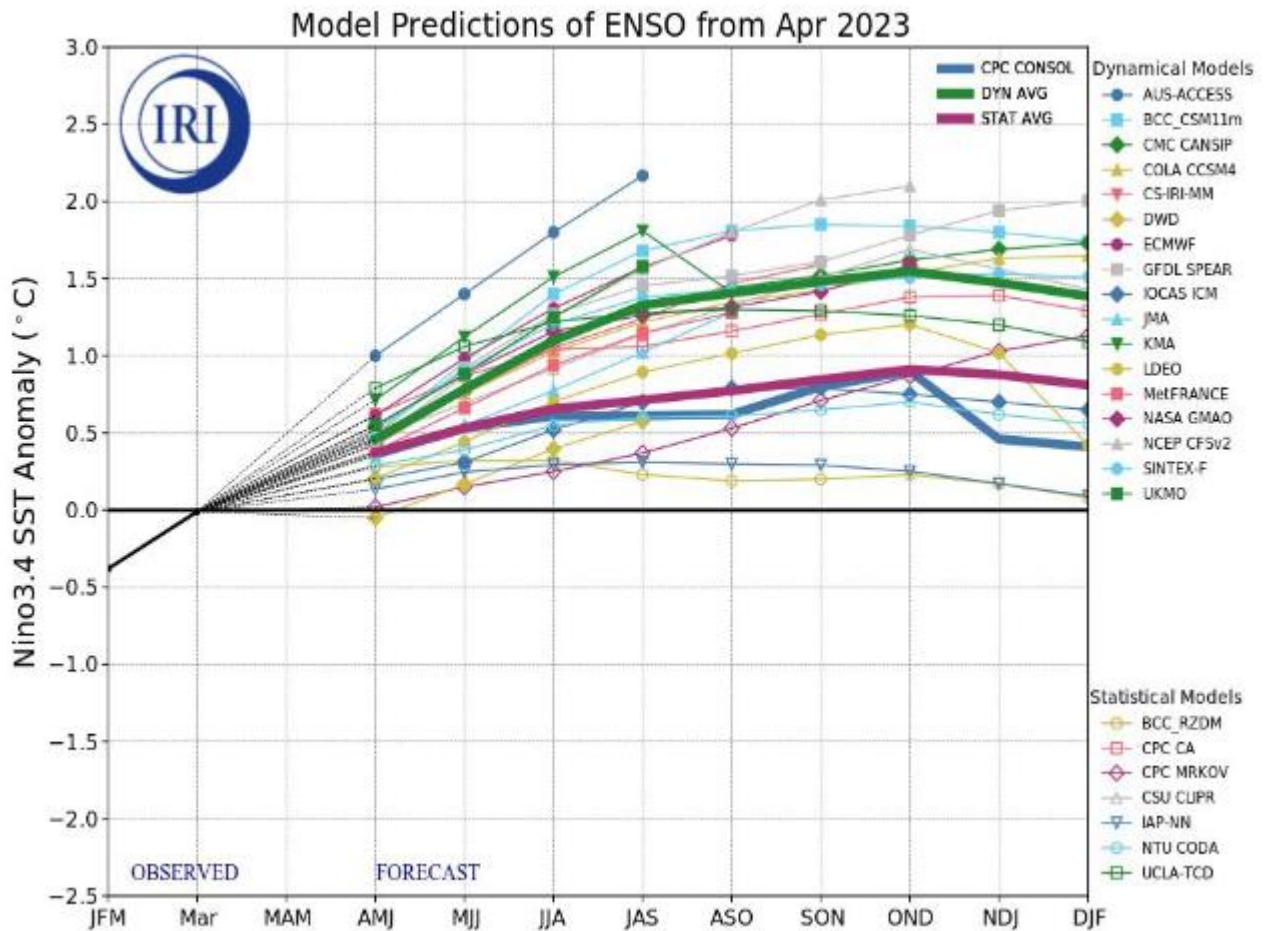
<https://www.climate.gov/enso>

## Official NOAA CPC ENSO Probabilities (issued Apr. 2023)

based on  $-0.5^{\circ}/+0.5^{\circ}\text{C}$  thresholds in ERSSTv5 Niño-3.4 index



Below is an image showing the model predictions of how the developing El Niño will play out over the upcoming winter:

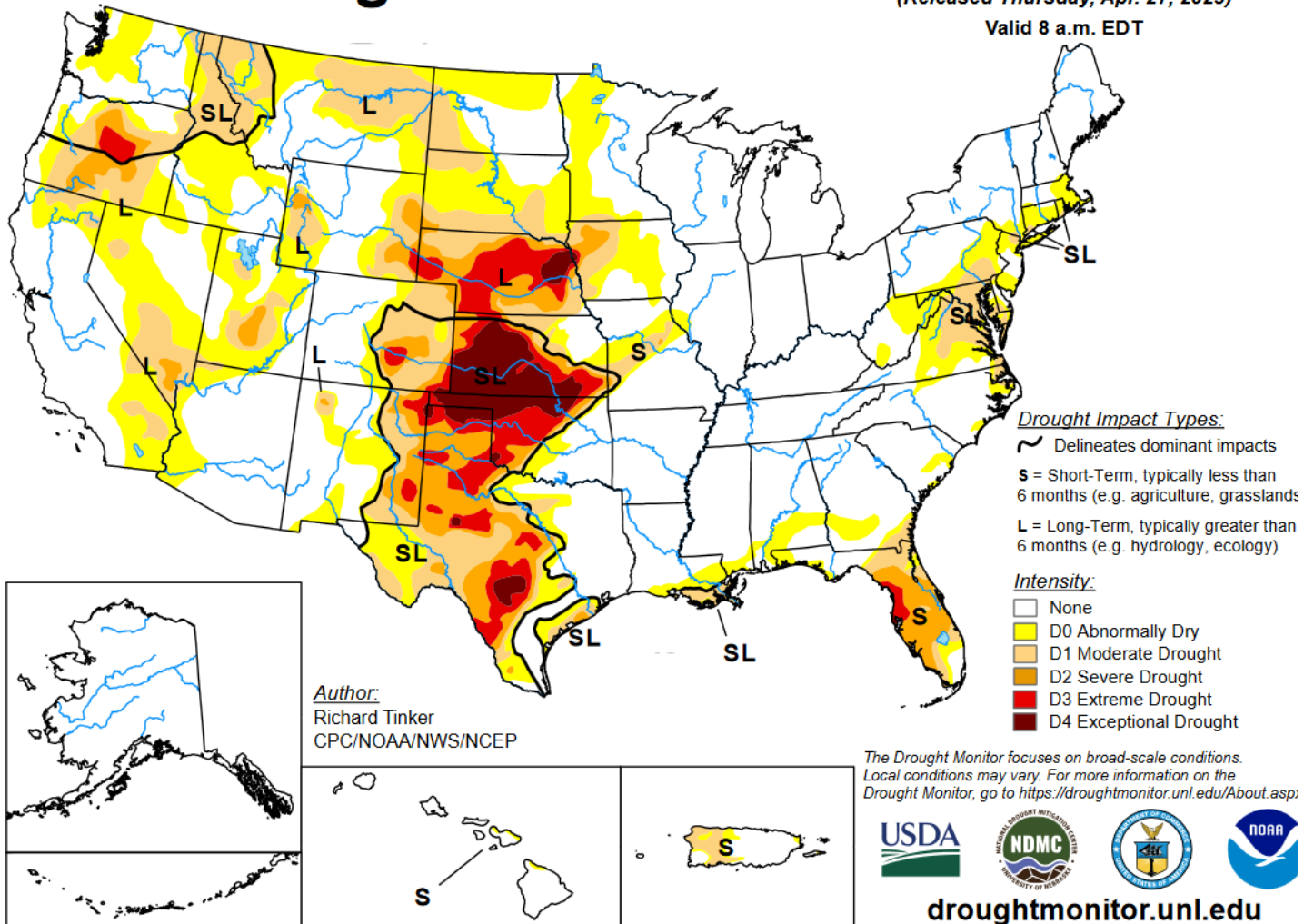


# Drought Update

Overall, much of eastern CO remains under abnormally dry conditions or moderate drought but areas of severe to extreme drought are starting to develop over SE Colorado. All of western Colorado is currently drought free thanks to abundant snowfall this winter. Drought conditions remain but have improved significantly over AZ/CA/NV and UT over the past few months thanks to abundant snowfall this winter season. East of the Mississippi river drought coverage is minimal and not severe except for parts of FL. The worst of the drought conditions persist to our east over NB/KS/OK and TX.

## U.S. Drought Monitor

**April 25, 2023**  
(Released Thursday, Apr. 27, 2023)  
Valid 8 a.m. EDT



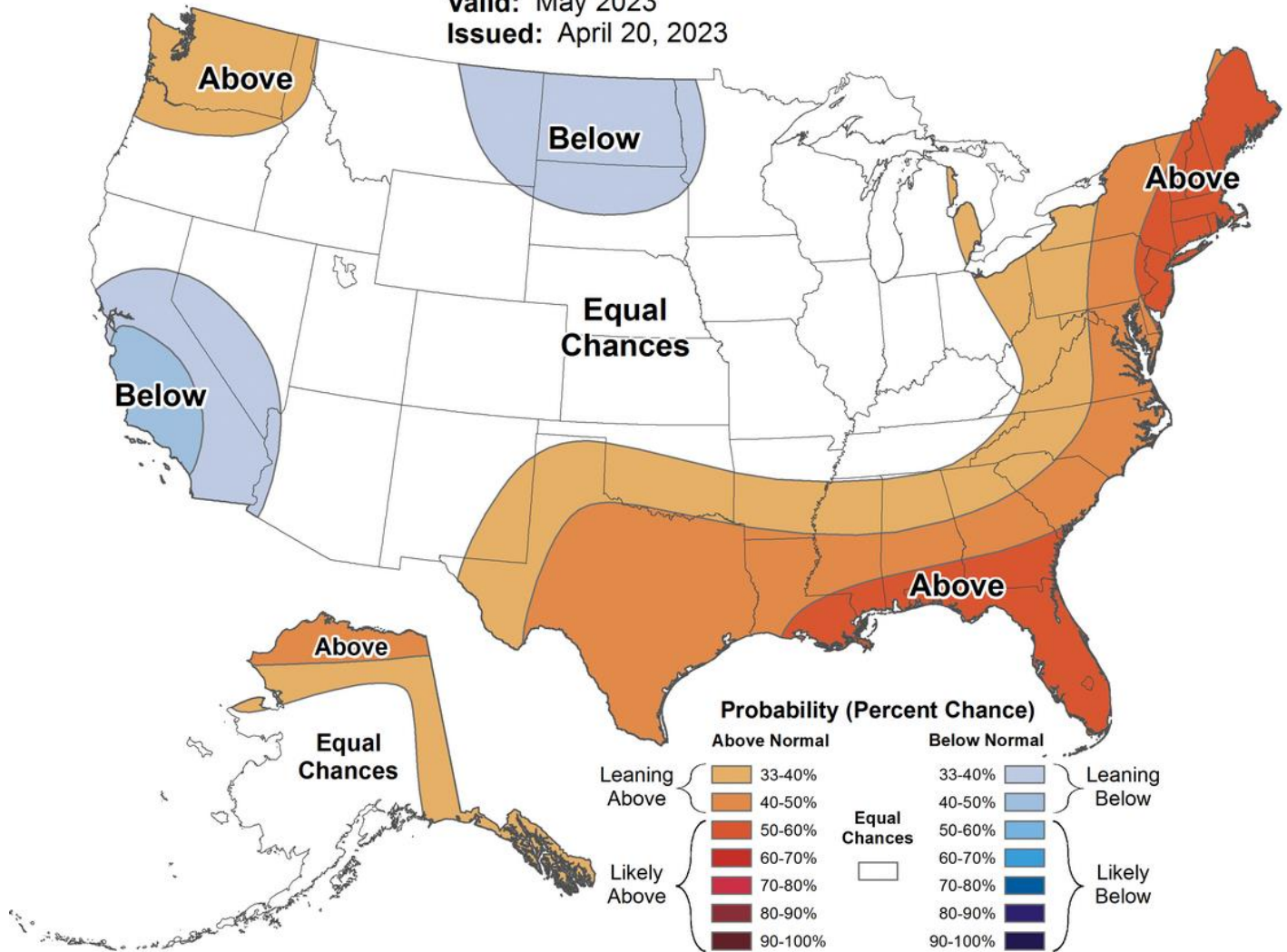
The map below shows forecasted temperature deviances for May 2023. There are equal chances for above or below normal temperatures over the state of Colorado.



# Monthly Temperature Outlook



Valid: May 2023  
Issued: April 20, 2023



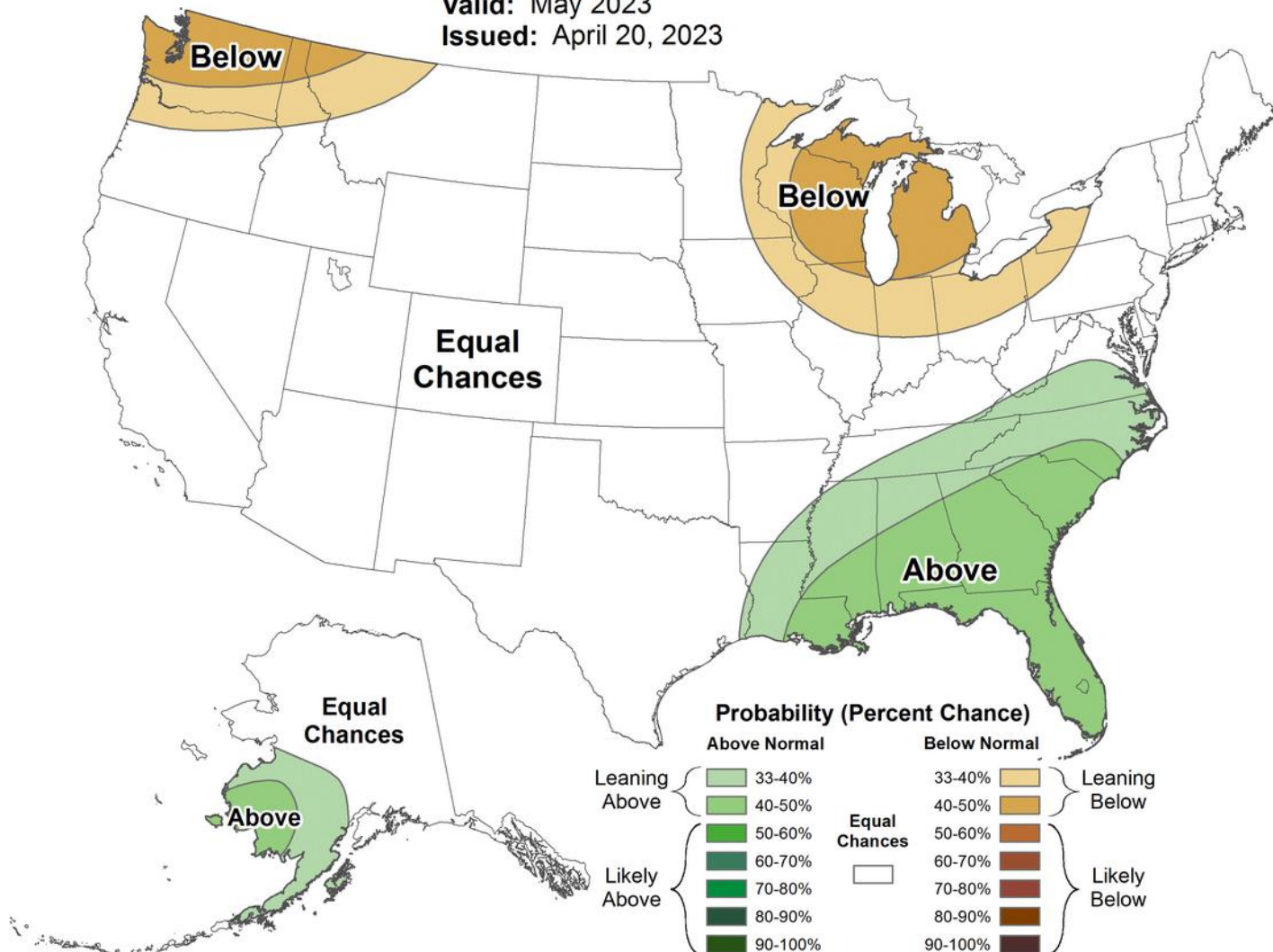
The map below shows forecasted precipitation deviances for May 2023. Colorado is projected to have equal chances for above or below normal precipitation for the month.



# Monthly Precipitation Outlook



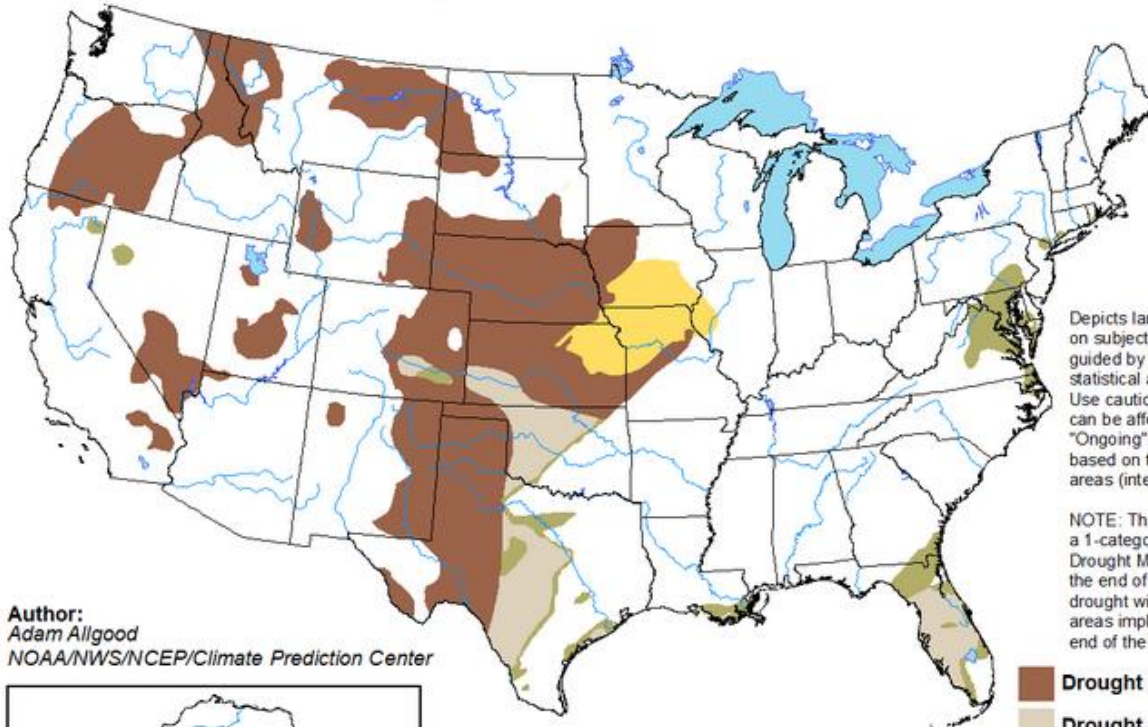
Valid: May 2023  
Issued: April 20, 2023



Drought conditions are expected to persist over eastern Colorado during the month of May with drought free conditions continuing over western areas of the state.

## U.S. Monthly Drought Outlook Drought Tendency During the Valid Period

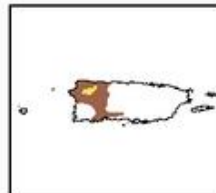
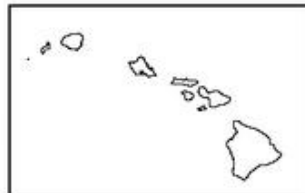
Valid for May 2023  
Released April 30, 2023



Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

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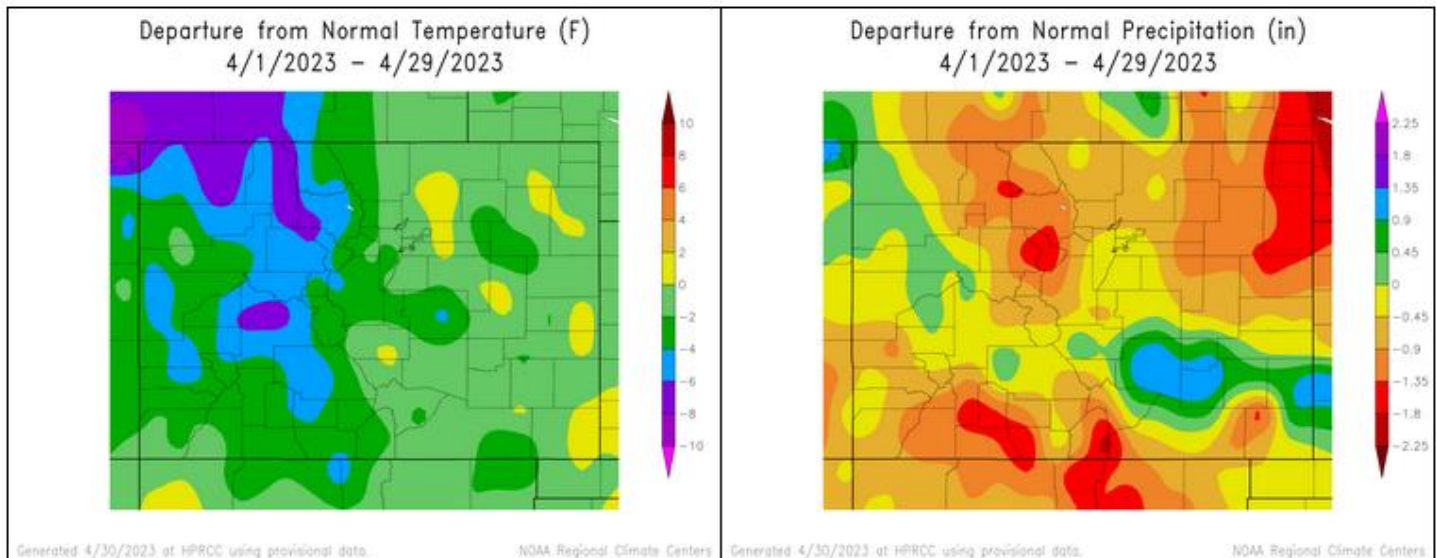
- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely



<http://go.usa.gov/3eZGd>

# April Summary

April of 2023 produced near normal to slightly below normal temperatures over northeastern Colorado with below normal precipitation and above/below normal snowfall depending upon elevation/location. The average high temperature at DIA during the month was 63.3°F, compared to the normal of 61.7°F, or 1.6°F above normal. The average lows were 32.2°F, or 1.7°F below the normal of 33.9°F. Combining the average highs and lows resulted in a monthly mean temperature of 47.8°F which was exactly normal for the month. The highest temperature during the month of April was 85°F on the 12<sup>th</sup> of the month and is the earliest 85 degree reading of the season in Denver history. There were 17 days with temperatures below freezing which was roughly 4 days more than average. The lowest temperature during the month was 11°F set on the 5<sup>th</sup>. April can be one of the wetter months of the year but not this year as most locations from Denver to Fort Collins reported below normal precipitation. From Castle Rock southward precipitation was near normal to slightly above normal for some as Castle Rock reported up to 2.0" of moisture for the month. At DIA moisture in the form of rain and melted snow came in at only 0.80" which was 0.88" below the normal of 1.68". Snowfall was below normal for most locations below 6,000ft with DIA reporting only 2.2" of snow which was 3.9" below the normal of 6.1". For the season DIA has reported 48.9" of snow, or 1.0" above the normal of 47.9". With the month of May only averaging 1.4" of snow the snow season will end up near normal for DIA even if May does not produce any snow at all. Most areas in and around the Metro area reported between 3-6" of snow with higher amounts over the western and southern suburbs. The foothills came in with much higher totals of 17-24" or more! The maps below show departure from normal temperature and precipitation over the state of Colorado. Notice how NW areas of the state were well below normal in temperature and parts of SE Colorado came in with above normal precipitation along the Arkansas River.



Over SE Colorado the month of April produced slightly below normal temperatures and near normal to above normal precipitation. Snowfall was above or below normal with most areas reporting above normal snowfall for El Paso County. The average high temperatures in Colorado Springs for April were 61.1°F, or 0.6 degrees above normal. Average low temperatures were 31.3°F, or 2.7 degrees below normal. Combining the average monthly highs and lows resulted in a monthly mean temperature of 46.5°F which was 1.0 degrees below normal. Precipitation at the Colorado Springs municipal airport was 1.45" which is exactly "normal". Snowfall came in at 6.7" which was 1.2" above the normal of 5.5". Most areas in and around Colorado Springs reported between 8-10" of snow with isolated higher and lower amounts. Snow totals of 16-25" were reported over northern El Paso County from Palmer Lake into Black Forest. Further south into the city of Pueblo temperatures were also below normal with a monthly mean temperature of 50.6°F, which was 0.7 degrees below normal. Pueblo reported 2.33" of moisture, 0.76" above normal and 1.7" of snow which is 1.7" below the normal of 3.4".

# April Statistics DIA

TEMPERATURE (IN DEGREES F)	OBSERVED VALUE	NORMAL VALUE		DEPARTURE FROM NORMAL
AVERAGE MAX	63.3°F	61.7°F		1.6°F
AVERAGE MIN	32.2°F	33.9°F		-1.7°F
MONTHLY MEAN	47.8°F	47.8°F		0.0°F
DAYS WITH MAX 90 OR ABOVE	0.0	0.0		0.0
DAYS WITH MAX 32 OR BELOW	0	0.5		-0.5
DAYS WITH MIN 32 OR BELOW	17	13.2		3.8
DAYS WITH MIN 0 OR BELOW	0	0.0		0.0
	OBSERVED VALUE	DATE(S)	NORMAL VALUE	DEPARTURE FROM NORMAL
HIGHEST	85°F	4/12		
LOWEST	11°F	4/5		
HEATING DEGREE DAYS				
MONTHLY TOTAL	515		517	-2
SEASONAL TOTAL (since 7/1)	5947		5550	397
COOLING DEGREE DAYS				
MONTHLY TOTAL	6		1	5
YEARLY TOTAL (since 1/1)	6		1	5
PRECIPITATION (IN INCHES)				
MONTHLY TOTAL	0.80"		1.68"	-0.88"
YEARLY TOTAL	2.79"		3.33"	-0.54"
GREATEST IN 24 HOURS	0.31"	4/25		
DAYS WITH MEASURABLE PRECIP.	7		9.0	-2.0
SNOWFALL (IN INCHES)				
MONTHLY TOTAL	2.2"		6.1"	-3.9"
SEASONAL TOTAL	48.9"		47.9"	1.0"
GREATEST IN 24 HOURS	2.2"	3/25		
GREATEST DEPTH	2.0"	3/16, 3/25		

# May Preview

May can be one of the wetter and cloudier months of the year and often provides the final snowfall of the season for many areas along the I-25 corridor. If you remember last year there was a snow storm on the 21<sup>st</sup> of May that produced hefty amounts for the foothills and Palmer Divide. This year May is not expected to produce snow for the plains, but the foothills will stand a good chance for another snow or two over the coming weeks. If one believes the drought monitor, there are equal chances for above or below normal temperatures and precipitation. With the way the month of May is starting out it appears more likely that temperatures will end up above normal with below normal precipitation for many areas of eastern Colorado. Average high temperatures to start the month are 65°F and end the month at 78°F, climbing 13 degrees during the month. Average low temperatures start the month off at 38°F and end the month at 49°F, gaining 11 degrees. The warmer temperatures in May allow for people to start planting their gardens as the last frost/freeze of the season typically occurs during the first couple weeks but as we experienced last year sometimes a freeze can happen as late as the 3<sup>rd</sup> or even 4<sup>th</sup> week of the month. There are typically 3 days with temperatures at or below freezing during the month of May but we may get away without a freeze from this point forward if current weather models are correct about how the next couple weeks will play out. Average monthly may precipitation is 2.16” and we average 10 days during the month with measurable precipitation which means about every 1 out of 3 days contains moisture. On the snowfall side, 1.4” of snow falls in May on average but many years no snow at all is observed and we think this will be one of those years for DIA. Thunderstorm season begins during the month of May and there are typically 6 days during the month with thunder. Thunderstorms that develop in May many times contain hail as the freezing levels are still relatively low in the atmosphere coming out of winter. Severe storms can develop in May but June is the top month for severe thunderstorms with the monsoon season typically setting up in the first week or two of July.

DENVER'S MAY CLIMATOLOGICALLY NORMAL	
(NORMAL PERIOD 1991-2020 DIA Data)	OBSERVED VALUE
<b>TEMPERATURE</b>	
AVERAGE HIGH	71.2°F
AVERAGE LOW	43.6°F
MONTHLY MEAN	57.4°F
DAYS WITH HIGH 90 OR ABOVE	0.8
DAYS WITH HIGH 32 OR BELOW	0.0
DAYS WITH LOW 32 OR BELOW	2.9
DAYS WITH LOWS ZERO OR BELOW	0.0
<b>PRECIPITATION</b>	
MONTHLY AVERAGE	2.16”
DAYS WITH MEASURABLE PRECIPITATION	10.4
AVERAGE SNOWFALL IN INCHES	1.4 ”
DAYS WITH 1.0 INCH OF SNOW OR MORE	NA
<b>MISCELLANEOUS AVERAGES</b>	

HEATING DEGREE DAYS	261
COOLING DEGREE DAYS	26
WIND SPEED (MPH)	6.3 mph
WIND DIRECTION	South
DAYS WITH THUNDERSTORMS	6
DAYS WITH DENSE FOG	1
% POSSIBLE SUNSHINE	64%
<b>EXTREMES</b>	
RECORD HIGH	95 on 5/26/1942
RECORD LOW	19 on 5/3/1907 and 5/2/2013
WARMEST	64.7 in 1934
COLDEST	48.7 in 1917
WETTEST	8.57" in 1876*, *-Wettest month in Denver history!
DRIEST	0.06" In 1974
SNOWIEST	15.5" in 1898
LEAST SNOWY	0.0" in numerous years

## Snowfall

City	Oct	Nov	Dec	Jan	Feb	Mar	Apr/May	Total
Aurora (Central)	TR	8.2"	12.4"	10.5"	5.8"	3.4"	3.2"	43.5"
Boulder	0.1"	24.5"	16.0"	9.3"	17.3"	4.3"	9.9"	81.4"
Brighton	0.0"	9.0"	10.2"	11.6"	5.2"	5.4"	2.9"	44.3"
Broomfield	TR	15.1"	16.1"	10.7"	8.6"	6.2"	4.5"	61.2"
Castle Rock	3.8"	5.6"	11.1"	13.3"	5.2"	6.0"	12.4	57.4"
Colo Sprgs Airport	TR	7.4"	3.9"	5.3"	12.4"	0.3"	6.6"	35.9"
Denver DIA	TR	10.9"	13.0"	13.0"	4.7"	5.1"	2.2"	48.9"
Denver Downtown	TR	9.1"	9.6"	9.7"	8.0"	2.0"	3.7"	42.1"
Fort Collins	0.2"	9.2"	4.0"	8.8"	4.8"	15.0"	4.7"	46.7"
Golden	2.0"	22.6"	16.2"	10.5"	14.7"	7.2"	17.6"	90.8"
Highlands Ranch	2.5"	10.6"	11.2"	8.6"	5.8"	2.7"	4.0"	45.4"
Lakewood	TR	10.6"	14.2"	9.0"	8.7"	3.3"	5.0"	50.8"
Littleton	1.2"	14.1"	11.0"	8.8"	7.8"	2.7"	5.8"	51.4"
Monument	5.5"	5.8"	13.2"	13.3"	10.0"	4.5"	24.5"	76.8"
Parker	1.0"	6.9"	11.0"	12.6"	5.8"	5.6"	6.7"	49.6"

Sedalia - Hwy 67	5.2"	7.6"	10.6"	15.2"	8.0"	3.2"	14.2"	64.0"
Thornton	TR	12.6"	12.5"	11.8"	6.3"	6.7"	2.5"	52.4"
Westminster	TR	13.3"	15.5"	10.2"	9.6"	6.3"	3.7"	58.6"
Wheat Ridge	TR	15.2"	14.4"	12.0"	9.1"	4.5"	3.8"	59.0"
Windsor	0.0"	8.6"	7.3"	9.9"	6.0"	12.3"	4.2"	48.3"

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