



The Weather Wire

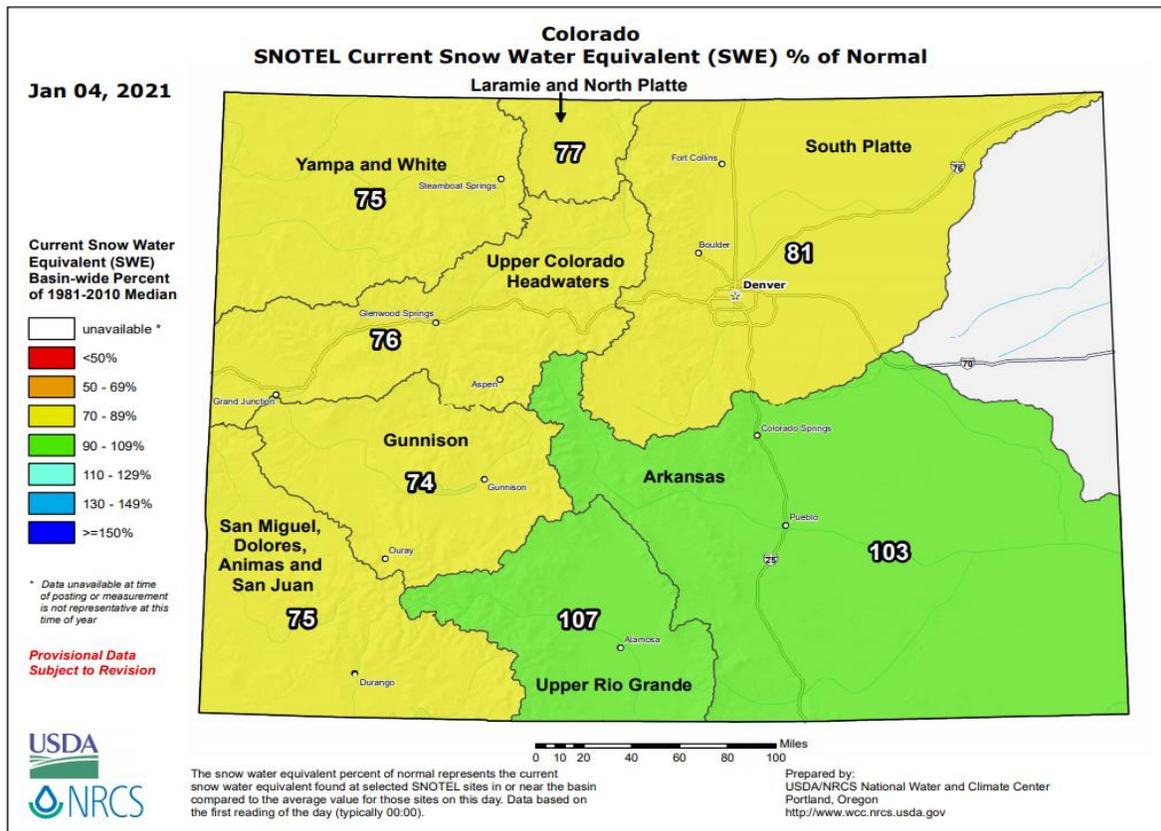
January 2021

Volume 28 Number 1

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Updated Colorado Snowpack Map



Snowpack over the state remains below normal in most areas with the exception being the upper Rio Grande and Arkansas River drainages. No doubt about it the ski resorts need more snow with most of the higher terrain that feeds our river drainages only around 75% of normal snowpack. We can still make up some ground but the weather pattern needs to become more active and persist for more than just a week or two at

a time as the dry spells between storms has been lengthy, limiting accumulations in the high country during what is normally the middle of snow accumulation season.

2020 Climate Review NE CO

Below is the annual climate summary for the Denver Metro area issued by the NWS in Boulder and can be found on the web at:

<https://www.weather.gov/bou/2020AnnualClimateSummary>

Denver's 2020 weather was dominated by dryness and some heat. Drought conditions developed and spread across Colorado, especially over the last half of the year, including the greater Denver area. In fact, 2020 in Denver finished with a total of 8.74 inches of precipitation. That is the 9th driest year in Denver since weather records began in 1872. The driest year ever recorded in Denver was 2002 when only 7.48 inches of precipitation fell.

Denver's average annual temperature in 2020 was 52.3 degrees, which tied for 15th warmest. That was 1.8 degrees above the normal yearly average of 50.5 degrees. Denver recorded the most days ever with a high temperature of 90 degrees or better; 75 days. The previous record was 73 days set in 2012. The average occurrence is just 30 days of 90 or above daily highs. There is an interesting note concerning one aspect of climatological warming at our local level. When looking at the total number of days annually that hit 90 degrees or better; the top 11 years in Denver have all occurred since 1994, with 15 of the top 20 occurring since 2000. That is pretty significant considering that there have been 149 years of data here in Denver since and including 1872.

Another interesting weather record concerning heat occurred in 2020. On September 5, 2020, the temperature hit 101 degrees. That broke the previous all-time monthly record high temperature for September that was just set the previous year; 2019. It also was the latest date in the year it ever reached 100 degrees or more in the Mile High City. There have only been 2 occurrences of 100 degree daily high temperatures in Denver in September; again 101 degrees on 9/5/2020 and 100 degrees on 9/2/2019.

Highlighting Denver's propensity for rapidly changing weather, just three days after that 101 degree temperature, a strong cold front moved in and brought daily record cold temperatures, 31 degrees on 9/8/2020, to the city along with an early September snowfall, its second earliest.

Some other notable weather events occurred in Denver and surrounding areas during 2020. A rare derecho moved across much of Colorado on 06/06/2020 including Greater Denver. Winds speeds of 60 to 75 mph were common throughout the Greater Denver Area, and in fact a gust to 110 mph was recorded at the Winter Park Ski Area, 43 miles west-northwest on Denver.

A drought affected much of Colorado, especially as the year wore on. It, along with vast tracts of beetle-killed forest, helped allow the largest fire in recorded Colorado history to burn 208,913 acres. The Cameron Peak Fire in Larimer County, some 75 miles northwest of Denver, burned from August 13 into early December of 2020. The second largest fire in recorded Colorado history started October 14, the latest start date of a large fire in Colorado, in Grand County. The fire, named the East

Troublesome Fire, burned 193,812 acres, including a major run of over 87,000 acres in less than 24 hours starting the afternoon of October 21, crossing the Continental Divide and running into Rocky Mountain National Park the morning of October 22.

The lowest temperature in 2020 occurred twice. It was -5 set on 02/04/2020 and 02/05/2020. These were also the only two occurrences of temperatures zero degrees or colder for all of 2020. The highest temperature of the year was 101 degrees set on both 7/19/2020 and the aforementioned 9/5/2020.

The severe weather season for the Greater Denver area was fairly benign in 2020. Of the storms that were severe, strong winds were the main culprit. There were some occurrences of large hail, mainly in the 1.0-1.25 inch range, but there really wasn't a significant hailstorm in 2020 across the Greater Denver area. There was no reported flash flooding. The "monsoon" rainy season, usually occurring from mid-July through late-August, was insignificant in 2020, which is part of the reason 2020 became the 9th driest year on record.

2020 Climate Review SE CO

Below is the annual climate summary for the SE CO issued by the NWS in Pueblo and can be found on the web at:

<https://www.weather.gov/pub/climate2020AnnualSummary>

January of 2020 was a generally warm and dry month across the region, save for a few passing weather systems within a mainly west to northwest flow pattern, bringing spotty precipitation to the higher terrain along the Continental Divide. February started out where January left off, warm and dry across south central and southeast Colorado, as Colorado Springs (73F) and Pueblo (79F) both setting record high temperatures on the 2nd day of the month. This warmth was short lived however, especially across southeastern Colorado, as multiple weather systems moved across the region bringing much colder temperatures and abundant precipitation (snow) to the area through most of the rest of the month.

March of 2020 started out like a "lion" as a passing weather system brought rain and snow to portions of south central and southeast Colorado through the first two days of the month. A few more weather systems moved across the Rockies through the rest of the month, bringing scattered precipitation which favored western and northern portions of the state. March, however, ended like a "lamb" with warm and dry conditions recorded across all of south central and southeast Colorado. April brought periods of warm and dry conditions, as well as periods of cold and wet conditions to northern and eastern portions of Colorado through the first half of the month, while warm and mainly dry conditions prevailed across southwestern portions of the state. Warm and relatively dry conditions prevailed across the area through the rest of the month, with record breaking heat experienced over portions of south central and southeast Colorado through the last week of April. May was a roller coaster type of month across south central and southeast Colorado, with periods of warm and dry conditions followed by periods of cool and wet conditions, as a few weather systems moved across the state.

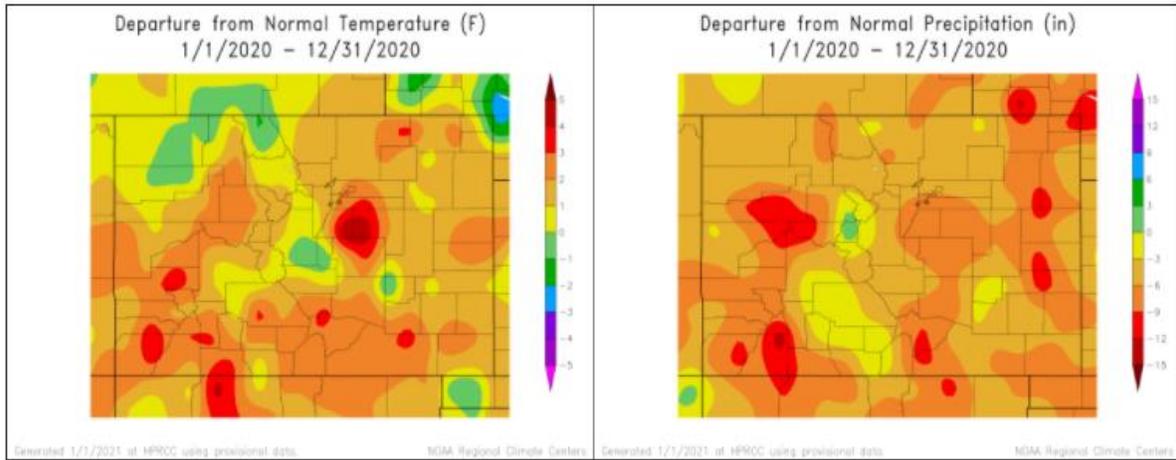
June of 2020 continued the roller coaster type of weather pattern as the previous month of May across south central and southeast Colorado, with periods of warm and dry conditions followed by periods of cool and wet conditions, as a few weather

systems moved across the state. On June 9th, measurable snowfall was recorded across portions of south central and southeast Colorado, especially across Northern El Paso County and the Palmer Divide. June also brought a few days of severe weather across the region, and produced localized areas of heavy rainfall. July continued the roller coaster type of weather pattern through the first half of the month, with hot and dry conditions followed by cooler and wetter conditions, especially across the southeast plains, where a few frontal passages brought bouts of severe weather to eastern Colorado. The latter portion of July saw an increase in monsoonal moisture across the state, with cooler and wetter conditions experienced into the end of the month. August of 2020 saw its share of severe weather across south central and southeast Colorado, most notably on August 5th, when destructive hail of up to 2 inches in diameter pounded southwestern portions of Colorado Springs. However, most of August of 2020 will be remembered for being generally hot and dry, with several major wildland fire starts across northern and western portions of Colorado, including the Pine Gulch fire in western Colorado, which had grown (at the time) to be largest wildfire on record in Colorado.

September of 2020 was a month of extremes across south central and southeast Colorado. The first week of the month was extremely warm, with Alamosa, Colorado Springs and Pueblo all setting new monthly record high temperatures, with a possible new Colorado September record high temperature of 108 degrees set in La Junta on September 6th. This was followed by record cold temperatures and record snowfall, as an unseasonably cold and strong storm system moved across the state September 8th through September 10th. Generally warm and dry conditions were experienced across the state through the rest of September, with a few minor fronts bringing a few days of slightly cooler temperatures to the region. October of 2020 was another month of extremes across south central and southeast Colorado. The first half of the month saw extremely warm and mainly dry conditions statewide, with Colorado Springs (87F) and Pueblo (94F) both tying their respective record high monthly temperatures. This was followed by record cold temperatures and record snowfall, as another unseasonably cold and strong storm system moved across the state October 25th through October 27th. This unseasonably cold system allowed Pueblo to also set its coldest October day on record, when the low temperature dropped to -8 degrees on October 26th. The month of October also saw multiple wildfire starts across the state, including the Cameron Peak Fire, which would become the largest wildfire on record in Colorado at over 200,000, as well as the Troublesome Fire, which would become the second largest wildfire on record across the state, growing over 100,000 acres in one day (from October 21st to 22nd).

November of 2020 started out very warm and dry across south central and southeast Colorado. The rest of the month saw ebbs and flows of temperatures, as a few passing weather systems brought some beneficial moisture to mainly the central and southwest mountains, along with some briefly cooler temperatures to the region, before warmer and drier conditions returned. December also saw ebbs and flows of temperatures, as a several passing weather systems brought beneficial moisture and snowfall, especially to portions of the southeast mountains and plains, along with some briefly cooler temperatures to the region, before warmer and drier conditions returned.

The following graphics depict preliminary departures from normal for both temperature and precipitation for 2020 across Colorado.



The 2020 average temperature in Colorado Springs was 51.9 degrees. This is 2.9 degrees above normal and makes 2020 the 5th warmest year on record in Colorado Springs. Colorado Springs recorded 9.89 inches of precipitation through out 2020. This is 6.65 inches below normal and makes 2020 the 14th driest year on record in Colorado Springs. Colorado Springs tallied 42.0 inches of snow through out 2020, which 4.3 inches above normal. A more detailed 2020 climate summary for Colorado Springs can be found at:

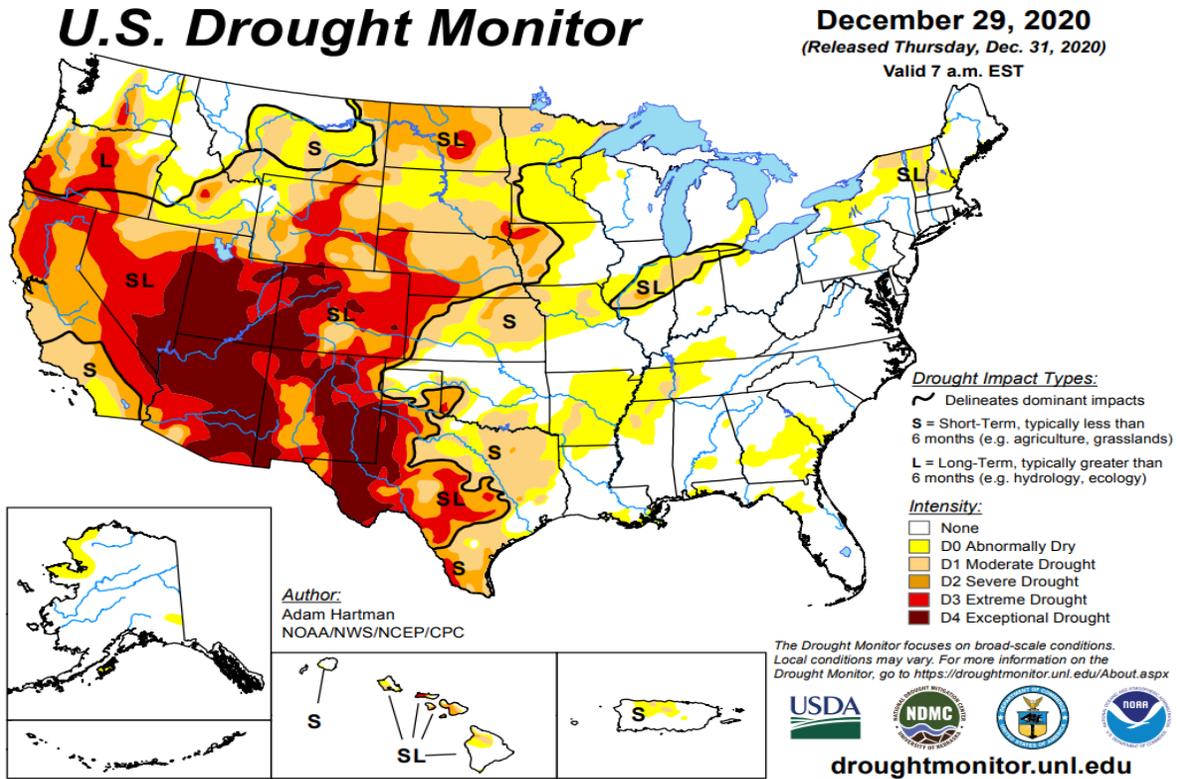
<https://forecast.weather.gov/product.php?issuedby=COS&product=CLA&site=pub>

The 2020 average temperature in Pueblo was 54.6 degrees. This is 2.6 degrees above normal and makes 2020 tied with 2017 as the 9th warmest year on record in Pueblo. Pueblo recorded 5.33 inches of precipitation through out 2020. This is 7.37 inches below normal and makes 2020 the 3rd driest year on record in Pueblo, just behind the 3.94 inches and 5.00 inches recorded in 2002 and 2012 respectively. Pueblo tallied 28.9 inches of snow through out 2020, which is 2.9 inches below normal. A more detailed 2020 climate summary for Pueblo can be found at:

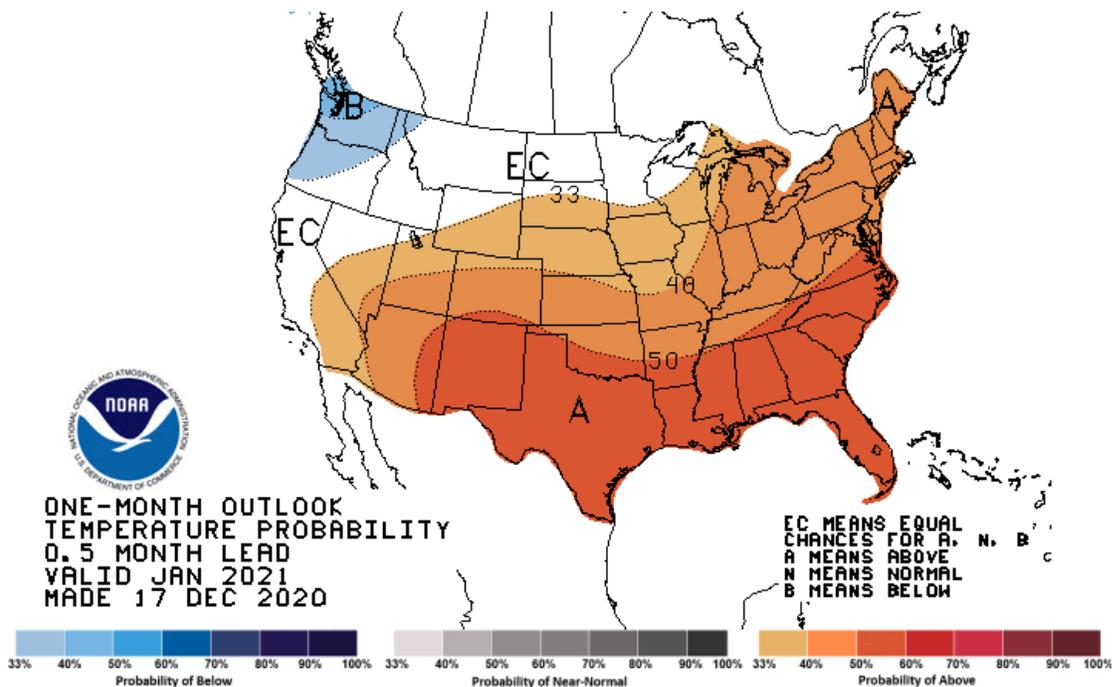
<https://forecast.weather.gov/product.php?issuedby=PUB&product=CLA&site=pub>

Drought Update

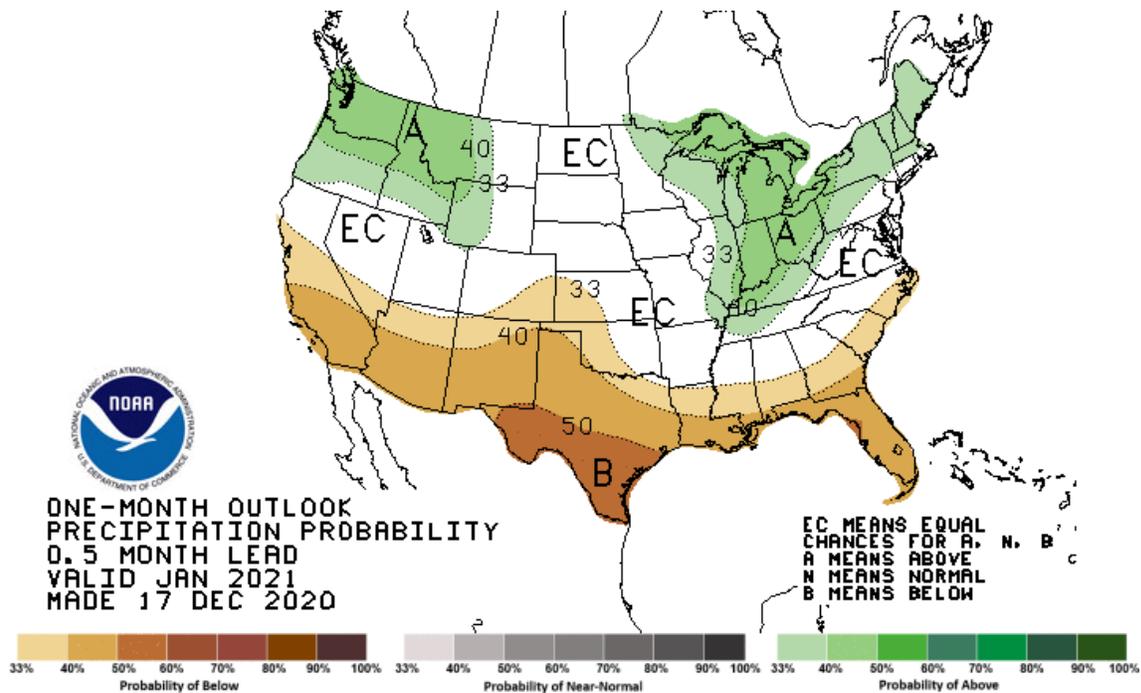
Drought conditions in Colorado continue to become more severe, encompassing the majority of the state. All of the 4-Corners states are experiencing extreme to exceptional drought over large geographic areas.



The map below shows forecasted temperature deviances for January 2021. There is a strong bias, especially over southern portions of the state for above normal temperatures through the month of January.



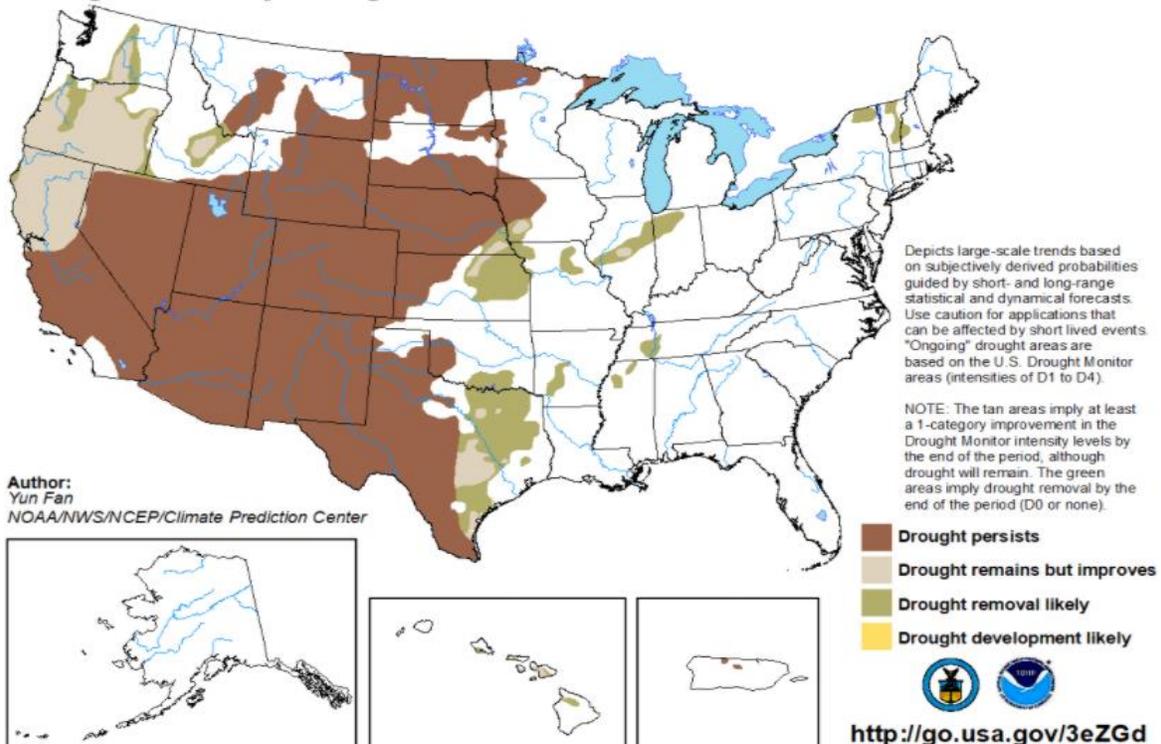
The map below shows forecasted precipitation deviances for January 2021. Near normal precipitation is expected over most of the state with a slight bias towards below normal precipitation over SE CO.



Colorado will continue to see drought conditions persist over the state during the month of January. Some improvement in the drought conditions are expected over the Pacific NW including N CA as an active La Nina storm track continues to steer storms into this region.

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

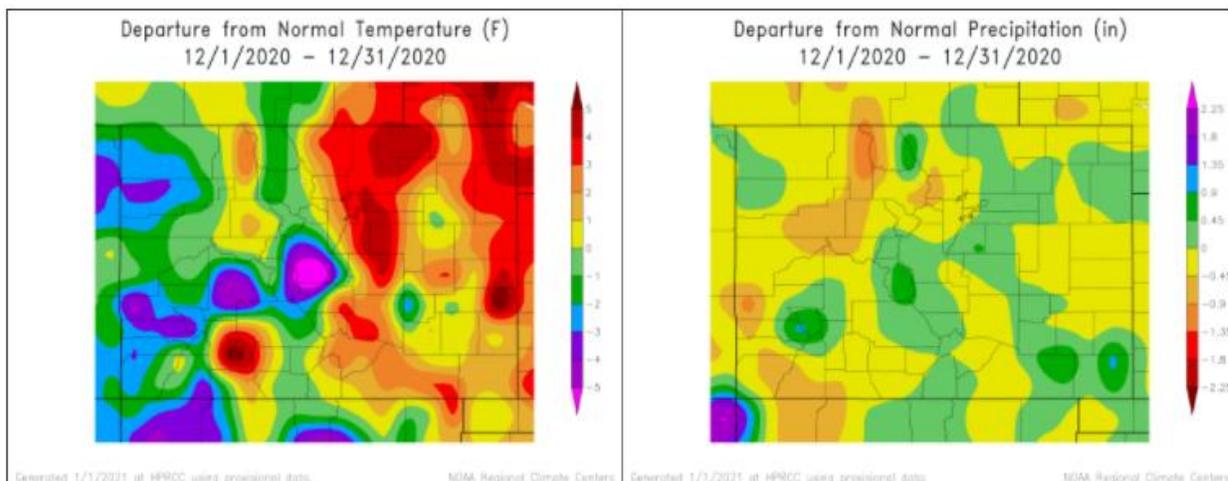
Valid for January 2021
Released December 31, 2020



December Summary

December of 2020 featured above normal temperatures with slightly above normal precipitation and slightly below normal snowfall. Average highs for the month were 45.5 degrees which was 2.7 degrees above the normal of 42.8 degrees. Average lows for the month were 20.7 degrees, 3.6 degrees above the normal of 17.1 degrees. Combining the monthly highs and lows resulted in a monthly mean temperature of 33.1 degrees which is 3.1 degrees above normal. Despite above normal temperatures there were not any high temperature records tied or broken with the warmest day during the month coming on the 9th with a high of 68 degrees. Typically we experience at least a couple days during the month of December with readings below zero, but not this year as the coldest reading was 5 degrees on the 14th. Even with the warmer than average temperatures there were 8 days with a temperature at or below freezing for a high which was above the normal of roughly 6 days. DIA reported 0.57" of moisture from 7.0" of snow during the month which was 0.22" above the normal precipitation of 0.35" and 1.5" below the normal snowfall of 8.5". Most areas in and around the Denver Metro area reported between 6-8" of snow for the month with isolated higher and lower totals. There were 5 snow events that impacted the I-25 corridor with the first on the 10-11th, another on the 12-13th, 14-15th, 18th and 28-29th. There were a few additional events that brought snow to the higher foothills but no snow to the I-25 corridor. Season snowfall at DIA now stands at 17.0" which is 5.5" below the normal of 22.5". Precipitation for the year at DIA was only 8.74", 5.80" below the normal of 14.54"!

Over SE CO, December of 2020 also produced above normal temperatures with slightly above normal precipitation and slightly below normal snowfall in Colorado Springs. The monthly mean temperature in Colorado Springs was 33.5 degrees which was 3.7 degrees above normal. The airport in Colorado Springs reported 0.52" of moisture and 5.1" of snow. The 0.52" was 0.18" above normal and the 5.1" of snow was 0.6" below normal. Pueblo posted a monthly mean temperature of 32.8 degrees which was 2.7 degrees above normal. Precipitation was below normal at 0.15", which was 0.23" below the normal of 0.38". Snowfall in Pueblo came in at only 1.4" for the month which was 4.1" below normal. Below is a map showing departure from normal temperature and precipitation statewide. The above normal temperatures were more prominent over E CO and in particular NE CO.



December Stats

TEMPERATURE (IN DEGREES F)

AVERAGE MAX	45.5	NORMAL	42.8	DEPARTURE	2.7
AVERAGE MIN	20.7	NORMAL	17.1	DEPARTURE	3.6
MONTHLY MEAN	33.1	NORMAL	30.0	DEPARTURE	3.1
HIGHEST	68 on the 9 th				
LOWEST	5 on the 14 th				

DAYS WITH MAX 90 OR ABOVE	0	NORMAL	0.0
DAYS WITH MAX 32 OR BELOW	8	NORMAL	5.8
DAYS WITH MIN 32 OR BELOW	29	NORMAL	29.4
DAYS WITH MIN ZERO OR BELOW	0	NORMAL	2.0

TEMPERATURE RECORDS

None

HEATING DEGREE DAYS

MONTHLY TOTAL	983	NORMAL	1086	DEPARTURE	-103
SEASONAL TOTAL	2218	NORMAL	2469	DEPARTURE	-251

COOLING DEGREE DAYS

MONTHLY TOTAL	0	NORMAL	0	DEPARTURE	0
YEARLY TOTAL	1155	NORMAL	769	DEPARTURE	386

PRECIPITATION (IN INCHES)

MONTHLY TOTAL	0.57	NORMAL	0.35	DEPARTURE	0.22
YEARLY TOTAL	8.74	NORMAL	14.54	DEPARTURE	-5.80
GREATEST IN 24 HOURS	0.16" on 12/12				
DAYS WITH MEASURABLE PRECIP.	7				

SNOWFALL (IN INCHES)

MONTHLY TOTAL	7.0	NORMAL	8.5	DEPARTURE	-1.5
SEASONAL TOTAL	17.0	NORMAL	22.5	DEPARTURE	-5.5
GREATEST IN 24 HOURS	3.1"				
GREATEST DEPTH	3.0"				

WIND (IN MILES PER HOUR)

AVERAGE SPEED 9.8 mph
PEAK WIND GUST 60 mph from the NW on 12/22

MISCELLANEOUS WEATHER

NUMBER OF DAYS WITH THUNDERSTORM	0	NORMAL	0
NUMBER OF DAYS WITH HEAVY FOG	1	NORMAL	1
NUMBER OF DAYS WITH HAIL	0		
NUMBER OF SUNNY DAYS	13		
NUMBER OF PARTLY CLOUDY DAYS	13		
NUMBER OF CLOUDY DAYS	5		
AVERAGE RELATIVE HUMIDITY	NA		

January Preview

The month of January is the second coldest month on average in Denver, just slightly warmer than December by 0.7 degrees. However, the all-time record low temperature for Denver of -29 degrees occurred during the month of January, way back on January 9, 1875. January is typically a drier month for Denver and is the 4th snowiest month with an average of 7.0". The snow in January is typically accompanied by temperatures well below freezing resulting in a high snow to liquid ratio of around 17/1. May times snow to liquid ratios can reach of exceed 20/1 ratios during the month of January when snow is accompanied by an arctic air mass. Major snow events are relatively rare in Denver during January as cold air holds less moisture than the relatively warmer air of spring and fall. In general, light and "powdery" type snowfalls are more common, especially following arctic cold fronts from the north. Average precipitation during January is only 0.41" which is one of the lower precipitation months of the year. Temperatures can be very cold at times in January with an average of two days recording temperatures below zero. Mild spells are common with high temperatures in the 50s/60s between storms with normal temperatures only occurring on paper for the most part as days are either warmer or colder than normal on any given day. The warmest temperature on record in Denver in January was 76 degrees set back in 1888. January 2021 is likely to feature a continuation of above normal temperatures overall with near normal snowfall and precipitation. Skyview Weather is expecting 3-5 snow events for the month with the majority being minor events and the possibility of a moderate snow event towards the middle or latter part of January.

**DENVER'S JANUARY CLIMATOLOGICALLY NORMAL
(NORMAL PERIOD 1981-2010 DIA Data)**

TEMPERATURE

AVERAGE HIGH	44.0
AVERAGE LOW	17.4
MONTHLY MEAN	30.7
DAYS WITH HIGH 90 OR ABOVE	0
DAYS WITH HIGH 32 OR BELOW	6
DAYS WITH LOW 32 OR BELOW	29
DAYS WITH LOWS ZERO OR BELOW	2

PRECIPITATION

MONTHLY MEAN	0.41"
DAYS WITH MEASURABLE PRECIPITATION	4
AVERAGE SNOWFALL IN INCHES	7.0"
DAYS WITH 1.0 INCH OF SNOW OR MORE	2

MISCELLANEOUS AVERAGES

HEATING DEGREE DAYS	1063
COOLING DEGREE DAYS	0
WIND SPEED (MPH)	8.6mph
WIND DIRECTION	South
DAYS WITH THUNDERSTORMS	0
DAYS WITH DENSE FOG	1
PERCENT OF SUNSHINE POSSIBLE	71%

EXTREMES

RECORD HIGH	76 on 1/27/1888
RECORD LOW	-29 on 1/9/1875
WARMEST	40.3 in 1986
COLDEST	16.9 in 1930
WETTEST	2.35" in 1883
DRIEST	0.01" in 1933
SNOWIEST	24.3" in 1992
LEAST SNOWIEST	TR in 2003, 1994

Snowfall

October 2020 to May 2020

City	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr/May	Total
Aurora (Central)	1.0	3.3	5.2	6.5					16.0
Boulder	5.7	12.5	7.5	6.2					31.9
Brighton	0.6	5.6	6.7	6.2					19.1
Broomfield	1.5	8.0	5.1	5.7					20.3
Castle Rock	2.8	7.0	3.8	8.4					23.0
Colo Sprgs Airpo	2.6	3.2	0.2	5.1					11.1
Denver DIA	1.0	4.0	5.0	7.0					17.0
Denver Downtow	1.5	4.7	6.0	7.1					19.3
Golden	2.8	6.7	7.2	8.1					27.8
Fort Collins	2.3	14.5	3.7	7.0					27.5
Highlands Ranch	2.6	6.3	5.3	6.3					20.5
Lakewood	2.4	5.0	7.4	6.5					21.3
Littleton	3.0	6.8	7.1	7.4					24.3
Monument	7.7	6.0	4.7	15.4					33.8
Parker	2.0	6.8	6.8	6.1					21.7
Sedalia - Hwy 67	4.0	6.2	6.7	10.1					27.0
Thornton	1.7	5.5	7.4	5.2					19.8
Westminster	2.0	6.6	9.6	6.9					25.1
Wheat Ridge	2.8	5.1	7.8	7.0					22.7

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