



# *The Weather Wire*

March 2013

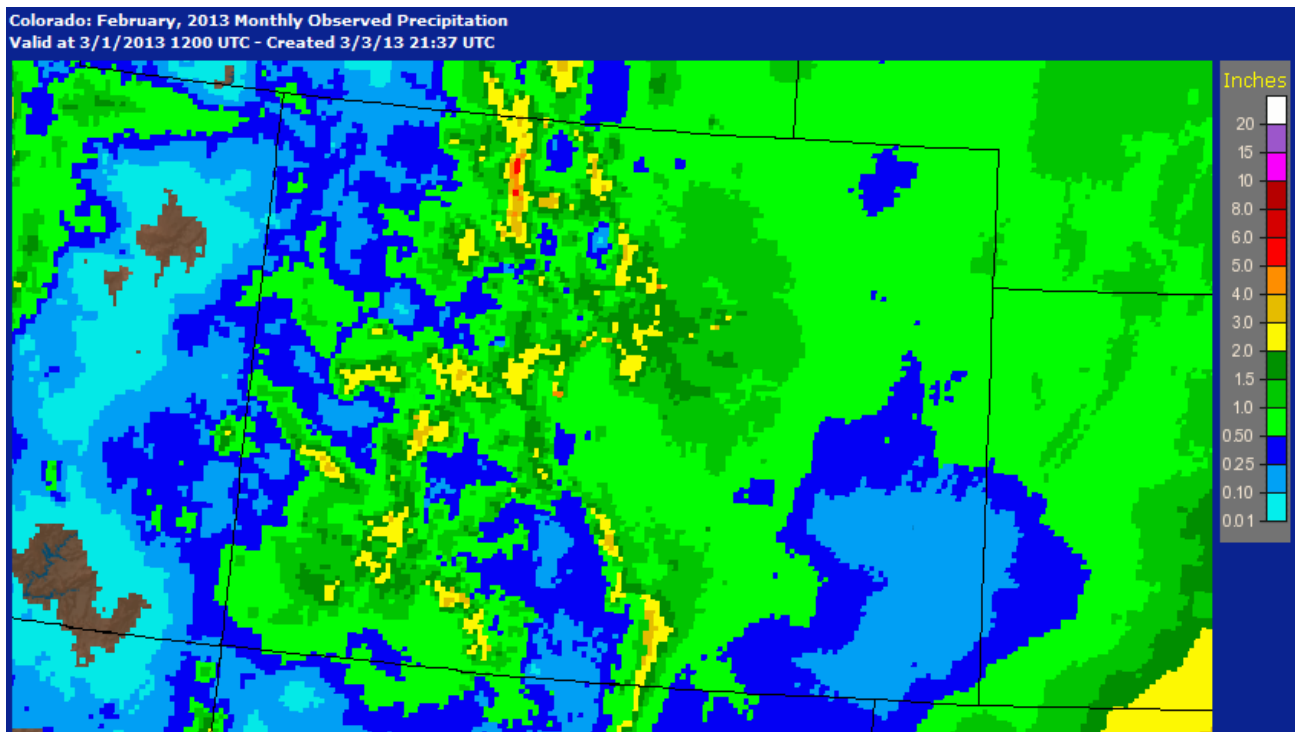
Volume 20 Number 3

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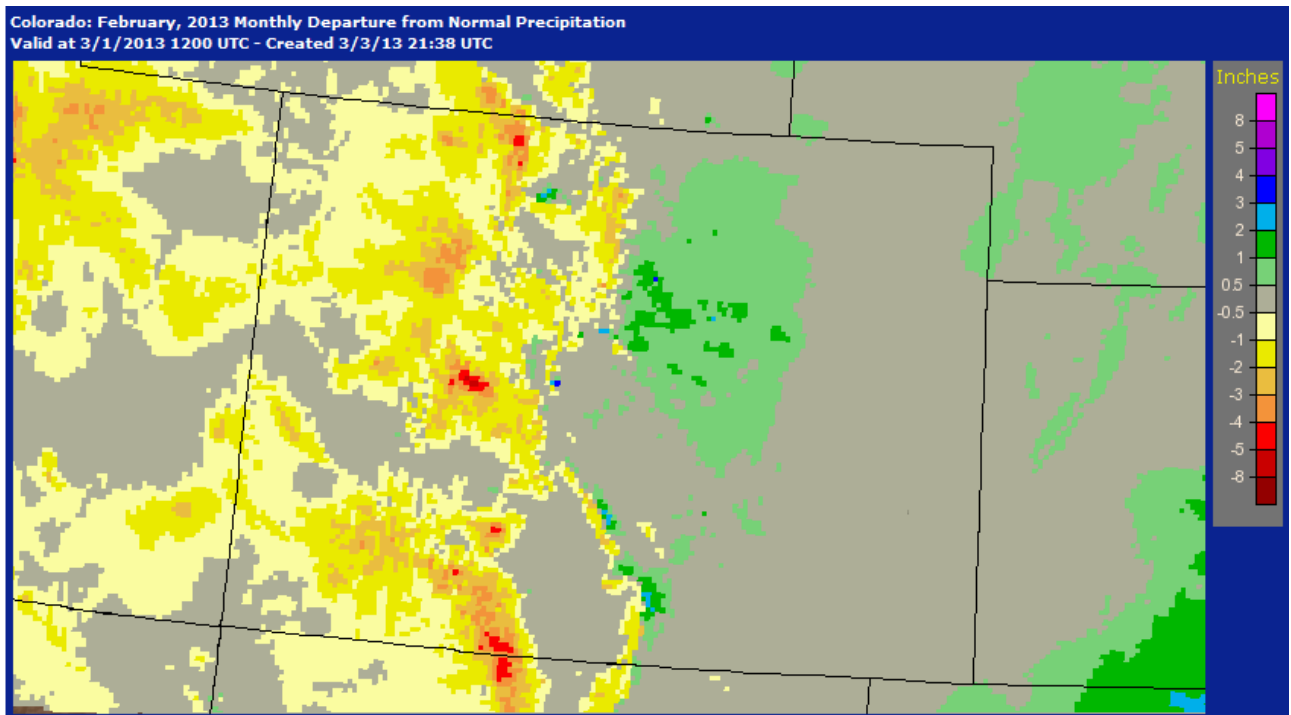
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## Snowfall versus Average and More!

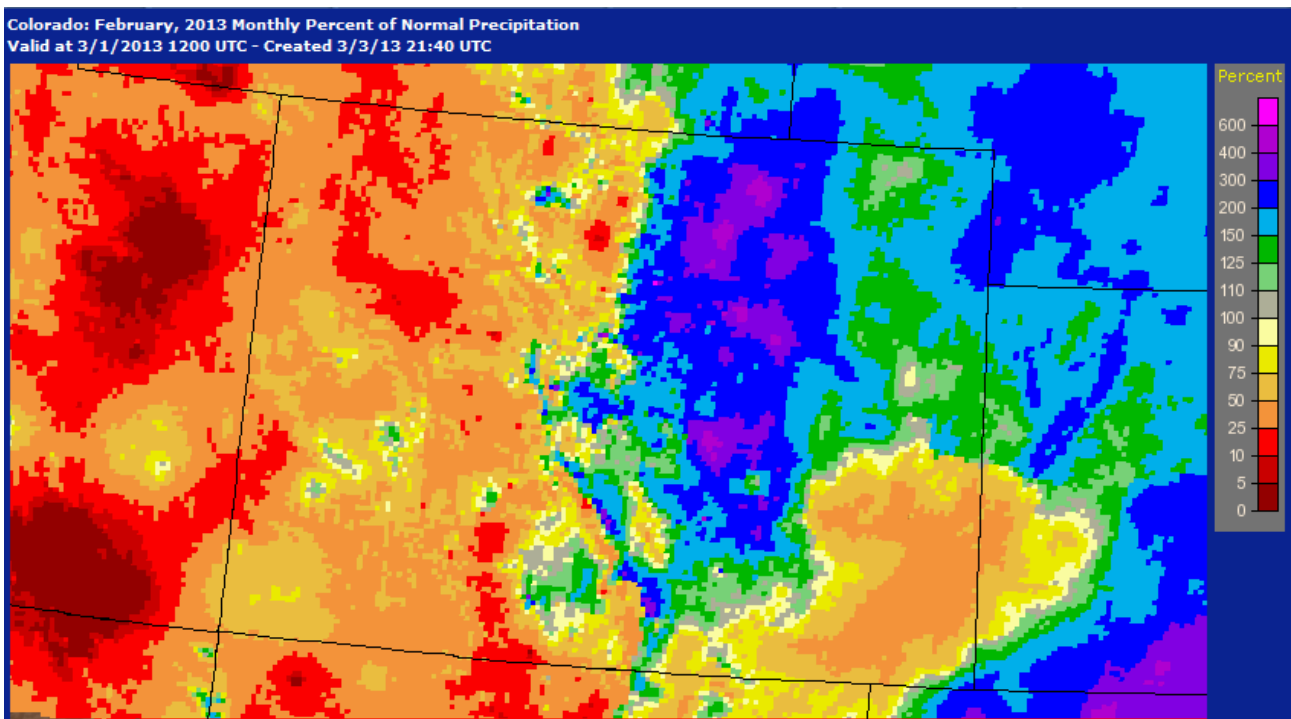
February provided beneficial moisture and helped fill some of the snowfall deficit that we have incurred so far this winter season. Many Front Range cities are now between 75-85% of normal snowfall as of March 1<sup>st</sup>. If March and April can provide above normal snowfall there is still modest chance that many areas receive normal to possibly even above snowfall for the season. The late season snows would be welcomed by many with open arms as the snow that falls from March until the end of the snow season is typically high in water content and will help to push the fire season back until later in the spring. Below is a map of the estimated precipitation amounts that fell over the state during the month of March:



Here is another map showing the precipitation departure of normal. Notice how parts of eastern Colorado were actually above normal and many areas along and west of the Continental Divide were below normal. Much of the mountain data needs to be taken with a grain of salt as the moisture totals are radar estimated and radar does not show up well in the mountains or they are blocked all together.



Below is a map that shows the % of normal precipitation that was estimated by radar during the month of February compared to normal.



These maps can be generated at: <http://water.weather.gov/precip/>

Below are selected locations where current snowfall as of March 1<sup>st</sup> is compared to normal. Seasonal totals are also included and how much snow we need from here on out to reach “normal” snowfall. The normal amounts below may be missing some data or the data range is not as long as desired but should still give a reasonable estimate of the area.

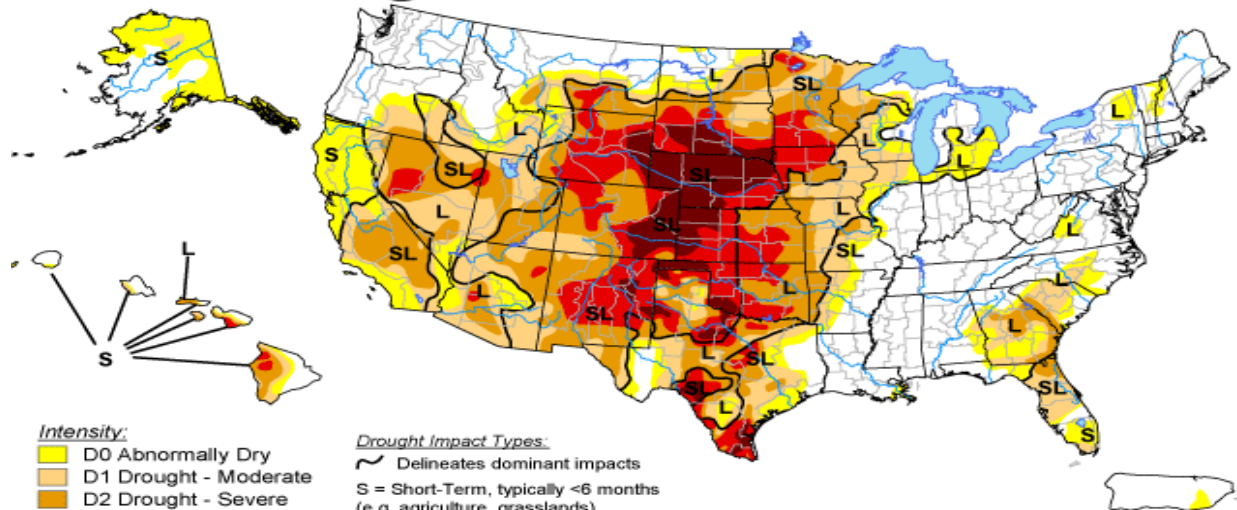
Location	Oct	Nov	Dec	Jan	Feb	Totals	Normal	% Normal	Season	Additional
	2012	2012	2012	2013	2013	As of 3/1	As of 3/1	As of 3/1	Total*	Snow for Normal
Boulder	8.1	0.8	11.7	3.7	18.2	42.5	52.7	81%	83.3	30.6
Brighton	5.6	3.0	2.0	3.3	12.8	26.7	25.8	103%	39.1	13.3
Castle Rock	4.0	0.2	10.8	2.1	16.1	33.2	36.2	92%	59.0	22.8
Cherry Creek Dam	4.8	1.7	8.9	3.6	14.6	33.6	32.5	103%	51.9	19.4
Cheyenne	10.1	0.4	14.8	3.4	10.5	39.2	31.7	124%	55.7	24.0
Colorado Springs	0.0	0.3	5.4	3.1	10.6	19.4	23.5	83%	39.3	15.8
Denver(1882-2010)**	5.5	1.7	5.2	4.6	14.1	31.1	35.3	88%	57.5	22.2
Estes Park	8.1	0.2	15.9	1.7	7.9	33.8	52.4	65%	101.4	49.0
Fort Collins CSU	4.5	0.4	5.8	2.6	10.6	23.9	32.8	73%	52.3	19.5
Greeley	6.0	3.0	3.0	3.0	8.9	23.9	26.9	89%	39.9	13.0
Lakewood Cntrl	4.9	1.0	5.8	4.0	14.1	29.8	35.2	85%	54.8	19.6
Littleton	4.5	1.5	10.3	4.2	19.0	39.5	45.5	87%	65.7	20.2
Longmont	6.5	1.4	3.4	1.7	12.5	25.5	22.7	112%	34.2	11.5
Loveland	5.5	4.8	6.5	1.5	14.4	32.7	28.2	116%	39.4	11.2
Monument Hill	3.3	0.0	13.1	3.9	27.5	47.8	62.5	76%	110.1	47.6
Nederland	10.3	0.1	18.6	2.5	28.2	59.7	76.5	78%	138.5	62.0
Northglenn	5.6	0.8	3.6	4.0	11.6	25.6	28.9	89%	42.4	13.5
* Data from Western Regional Climate Center (WRCC):										
<a href="http://www.wrcc.dri.edu/htmlfiles/co/co.sno.html">http://www.wrcc.dri.edu/htmlfiles/co/co.sno.html</a>										
** Denver Data(1882-2012) is slightly higher than the more recent climate data used in newsletter(1981-2010)										

## Drought Update

Severe, extreme and exceptional drought continues over the central part of the US from South Dakota to Texas extending westward into Colorado. The NW and along and east of the Mississippi River including the east Coast continue to experience abundant moisture this winter and are relatively drought free.

# U.S. Drought Monitor

February 26, 2013  
Valid 7 a.m. EST



**Intensity:**

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

**Drought Impact Types:**

- ~ Delineates dominant impacts
- S = Short-Term, typically <6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months (e.g. hydrology, ecology)

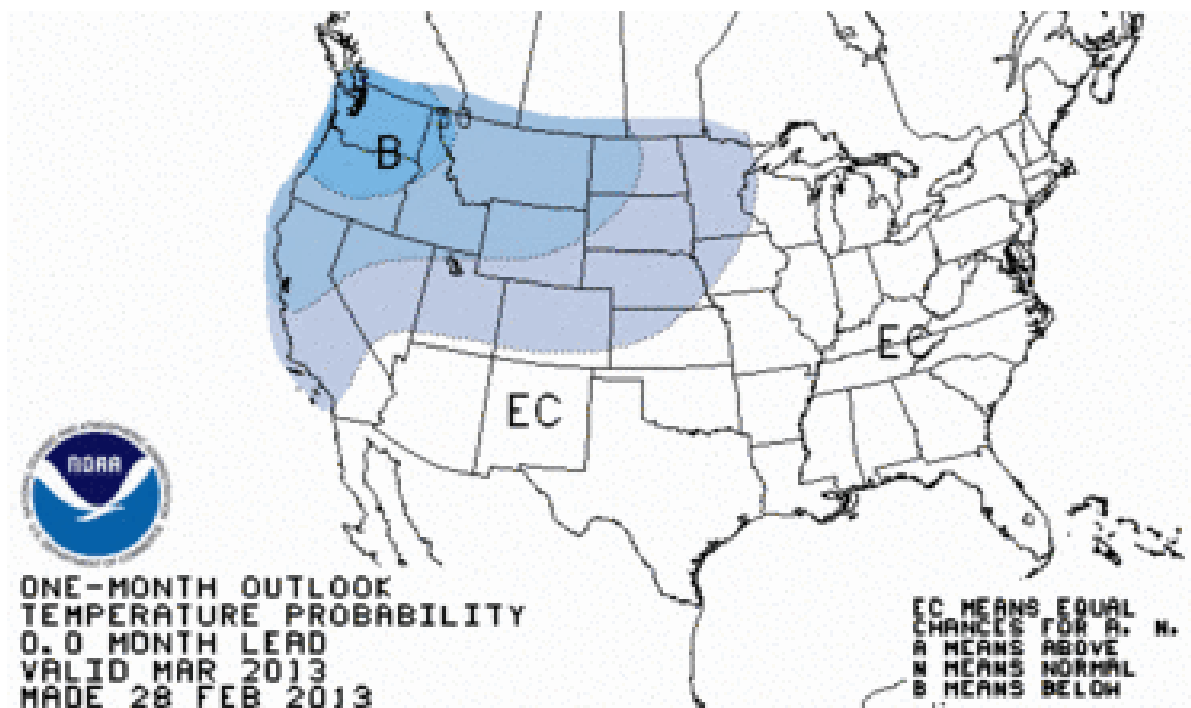
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu/>

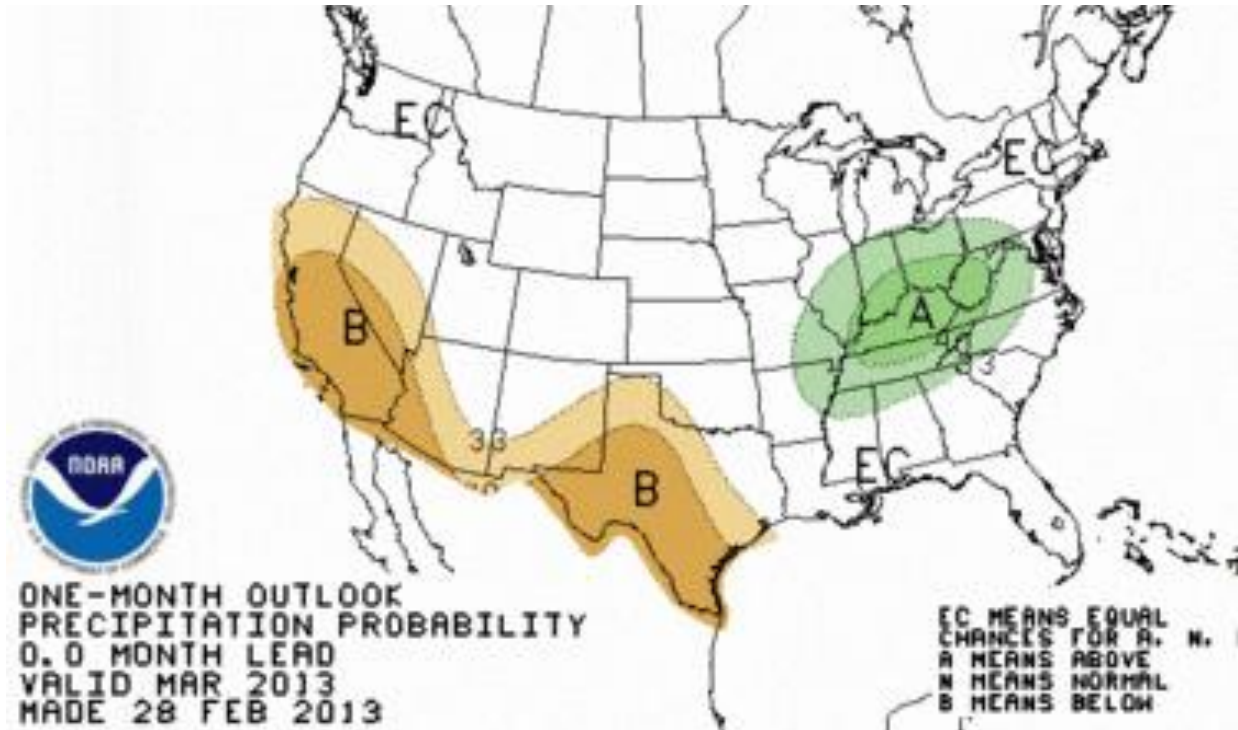


Released Thursday, February 28, 2013  
Author: Brian Fuchs, National Drought Mitigation Center

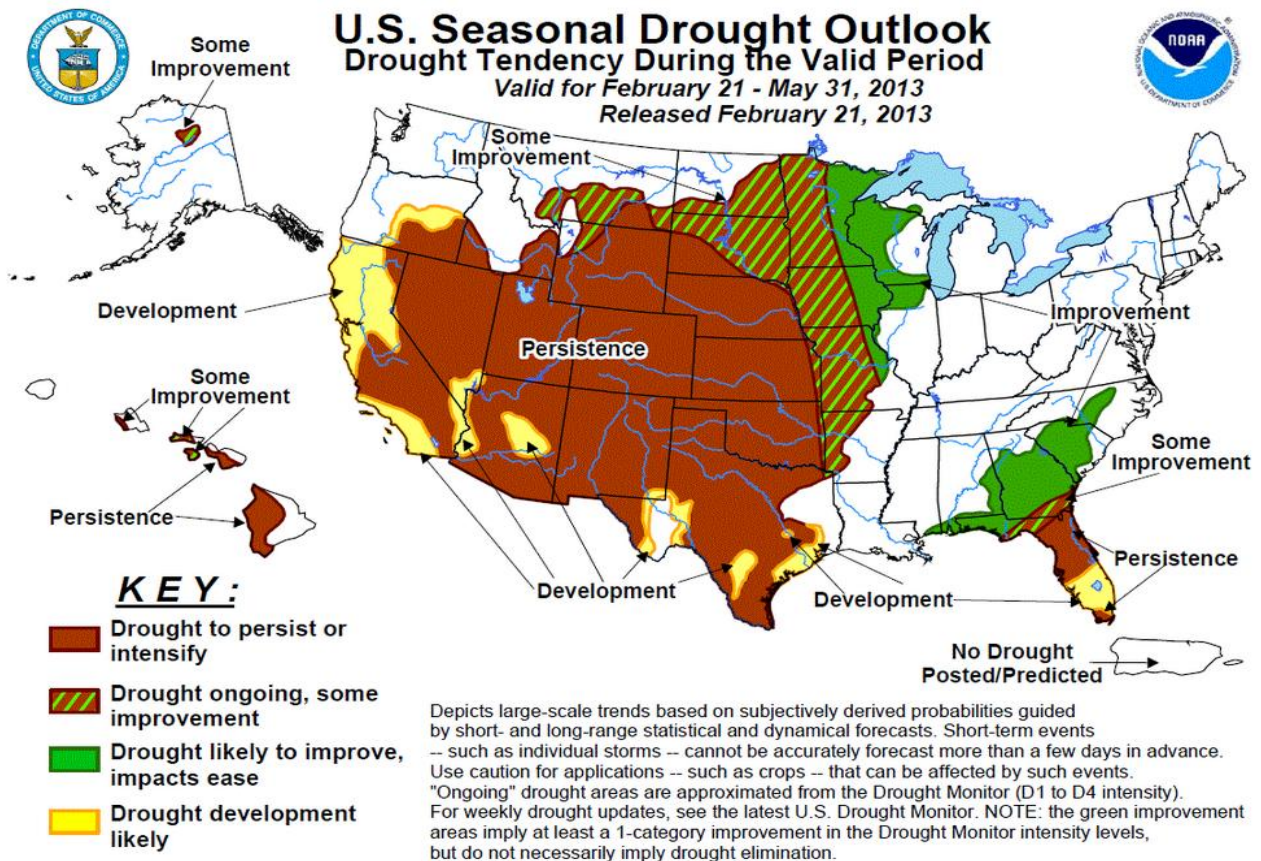
The map below shows forecasted temperature deviances for March 2013. Near normal to below normal temperatures are forecast for march in Colorado.



The map below shows forecasted precipitation deviances for March 2013. Near normal precipitation is likely over the state of Colorado.



Drought conditions are forecast to persist over Colorado as the lack of moisture in 2012 will likely take many months to recover from.



## February Summary

February was colder than average and provided much needed moisture with above normal precipitation and snowfall. Average high temperatures were 43 degrees with a monthly high of 63 degrees on the 17<sup>th</sup>. Average low temperatures were 17 degrees with a monthly low of 5 degrees on the 22<sup>nd</sup>. The monthly mean temperature was 30.1 degrees which is 2.4 degrees below normal. There were 6 days during the month where the temperature remained at or below freezing. There were not any temperature records tied or broken during the month. The month featured a high frequency of weather events but only light precipitation/snowfall occurred through mid month. Towards the latter part of the month the storm systems tracked in a more favorable position to produce more meaningful snows. On the 24<sup>th</sup> there was 9.1" of snow reported at DIA which set a new daily snowfall record. Colorado Springs also got in on the act setting a daily snowfall and precipitation record on the 20<sup>th</sup> with 7.3" of snow reported at the airport containing 0.65" of moisture. For the Month at DIA 0.77" of moisture was reported which is 0.40" above the average of 0.37". Snowfall reported at DIA during February tallied 14.1" which is 8.4" above the average of 5.7". The higher than normal snowfall helped cut the season snow deficit to only 4.0" below normal for this time of year. As of the end of February DIA has reported 31.1" of snow (35.1" Average).

## February Stats

### TEMPERATURE (IN DEGREES F)

AVERAGE MAX	43.3	NORMAL 46.2	DEPARTURE -2.9
AVERAGE MIN	16.9	NORMAL 18.9	DEPARTURE -2.0
MONTHLY MEAN	30.1	NORMAL 32.5	DEPARTURE -2.4
HIGHEST	63	on the 17 <sup>th</sup>	
LOWEST	5	on the 22 <sup>nd</sup>	

DAYS WITH MAX 90 OR ABOVE	0	NORMAL	0
DAYS WITH MAX 32 OR BELOW	6	NORMAL	4
DAYS WITH MIN 32 OR BELOW	28	NORMAL	27
DAYS WITH MIN ZERO OR BELOW	0	NORMAL	1

### TEMPERATURE RECORDS

No temperature records tied or broken.

### HEATING DEGREE DAYS

MONTHLY TOTAL	972	NORMAL 908	DEPARTURE 64
SEASONAL TOTAL	4272	NORMAL 4439	DEPARTURE -167

### COOLING DEGREE DAYS

MONTHLY TOTAL	0	NORMAL 0	DEPARTURE 0
YEARLY TOTAL	0	NORMAL 0	DEPARTURE 0

**PRECIPITATION (IN INCHES)**

MONTHLY TOTAL	0.77	NORMAL 0.37	DEPARTURE 0.40
YEARLY TOTAL	1.08	NORMAL 0.78	DEPARTURE 0.30
GREATEST IN 24 HOURS	0.43" on 2/24		
DAYS WITH MEASURABLE PRECIP.	6		

**SNOWFALL (IN INCHES)**

MONTHLY TOTAL	14.1	NORMAL 5.7	DEPARTURE 8.4
SEASONAL TOTAL	31.1	NORMAL 35.1	DEPARTURE -4.0
GREATEST IN 24 HOURS	9.1" on 2/24		
GREATEST DEPTH	NA		

**WIND (IN MILES PER HOUR)**

AVERAGE SPEED	10.3mph
PEAK WIND GUST	44mph from the North

**MISCELLANEOUS WEATHER**

NUMBER OF DAYS WITH THUNDERSTORM	0	NORMAL	0
NUMBER OF DAYS WITH HEAVY FOG	2	NORMAL	2
NUMBER OF DAYS WITH HAIL	0		
NUMBER OF SUNNY DAYS	5		
NUMBER OF PARTLY CLOUDY DAYS	16		
NUMBER OF CLOUDY DAYS	7		
AVERAGE RELATIVE HUMIDITY	51%		

## March Preview

March is most often on one side or the other compared to “normal” as the weather can change dramatically from day to day. There will be days with temperatures in the 70s and temperatures can climb into the 80s with a record high of 84 degrees. There are other days where the high temperature may remain below freezing and temperatures below zero can still occur with a record low of -11 for the month. Average temperatures start out the month around 50 degrees and end the month at 58 degrees. Average low temperatures start out at 22 degrees and end the month at 30 degrees. The monthly mean temperature is just above 40 degrees. When cold fronts move through temperatures can drop as much as 30-40 degrees in a short time with a wide variety of weather ranging from heavy snow behind the front to thunderstorms along and ahead of it. Precipitation in March is nearly triple that of February at 0.92” and is the snowiest month of the year for the Denver Metro area. Average snowfall is 10.7” and much of that can occur in just one storm. In the past 10 years we have experienced the monthly extremes in snowfall with a record setting 35.2” in March of 2003 and only a trace reported last year in 2012. On average there are 6 days during the month with measureable precipitation 4 of which produce 1” or more of snow. March of 2013 is expected to be rather active weather wise see sawing back and forth from warm and cold periods with precipitation and snowfall near normal. Temperatures are expected to be normal to slightly below normal.

### DENVER'S MARCH CLIMATOLOGICALLY NORMAL (NORMAL PERIOD 1981-2010 DIA Data)

#### TEMPERATURE

AVERAGE HIGH	54.4
AVERAGE LOW	26.4
MONTHLY MEAN	40.4
DAYS WITH HIGH 90 OR ABOVE	0
DAYS WITH HIGH 32 OR BELOW	2
DAYS WITH LOW 32 OR BELOW	24
DAYS WITH LOWS ZERO OR BELOW	0

#### PRECIPITATION

MONTHLY MEAN	0.92”
DAYS WITH MEASURABLE PRECIPITATION	6
AVERAGE SNOWFALL IN INCHES	10.7”
DAYS WITH 1.0 INCH OF SNOW OR MORE	4

#### MISCELLANEOUS AVERAGES

HEATING DEGREE DAYS	763
COOLING DEGREE DAYS	0
WIND SPEED (MPH)	9.7mph
WIND DIRECTION	South
DAYS WITH THUNDERSTORMS	Less than 1
DAYS WITH DENSE FOG	1
PERCENT OF SUNSHINE POSSIBLE	69%



## EXTREMES

RECORD HIGH	84 on 3/26/1971
RECORD LOW	-11 on 3/28/1886
WARMEST	50.4 in 1910
COLDEST	26.4 in 1912
WETTEST	4.56" in 1983
DRIEST	0.11" in 1908
SNOWIEST	35.2" in 2003
LEAST SNOWIEST	Trace in 2012

## Sunrise/Sunset (July - December Denver area)

	JAN	FEB	MAR	APR	MAY	JUN	
	SR - SS	SR - SS	SR - SS	SR - SS	SR - SS	SR - SS	
01	0720-0445	0706-0517	0631-0550	0642-0722	0559-0752	0532-0820	01
02	0720-0446	0705-0518	0630-0551	0641-0723	0558-0753	0532-0821	02
03	0720-0447	0704-0520	0628-0552	0639-0724	0556-0754	0532-0822	03
04	0720-0448	0703-0521	0627-0553	0637-0725	0555-0755	0531-0823	04
05	0720-0449	0702-0522	0625-0554	0636-0726	0554-0756	0531-0823	05
06	0720-0449	0701-0523	0624-0555	0634-0727	0553-0757	0531-0824	06
07	0720-0450	0700-0524	0622-0556	0633-0728	0552-0758	0531-0824	07
08	0720-0451	0659-0526	0621-0557	0631-0729	0551-0759	0530-0825	08
09	0720-0452	0658-0527	0619-0558	0630-0730	0550-0800	0530-0826	09
10	0719-0453	0657-0528	0717-0700	0628-0731	0549-0801	0530-0826	10
11	0719-0454	0656-0529	0716-0701	0627-0732	0548-0802	0530-0827	11
12	0719-0456	0654-0530	0714-0702	0625-0733	0547-0803	0530-0827	12
13	0719-0457	0653-0532	0713-0703	0624-0734	0546-0804	0530-0828	13
14	0718-0458	0652-0533	0711-0704	0622-0735	0545-0805	0530-0828	14
15	0718-0459	0651-0534	0710-0705	0621-0736	0544-0806	0530-0828	15
16	0717-0500	0649-0535	0708-0706	0619-0737	0543-0807	0530-0829	16
17	0717-0501	0648-0536	0706-0707	0618-0738	0542-0808	0530-0829	17
18	0717-0501	0647-0537	0705-0708	0616-0739	0541-0809	0530-0829	18
19	0716-0502	0645-0539	0703-0709	0615-0740	0540-0810	0530-0830	19
20	0715-0503	0644-0540	0702-0710	0613-0741	0540-0811	0531-0830	20
21	0715-0504	0643-0541	0700-0711	0612-0742	0539-0812	0531-0830	21
22	0714-0505	0641-0542	0658-0712	0611-0743	0538-0812	0531-0830	22
23	0714-0507	0640-0543	0657-0713	0609-0744	0537-0813	0531-0831	23
24	0713-0508	0639-0544	0655-0714	0608-0745	0537-0814	0532-0831	24
25	0712-0509	0637-0545	0653-0715	0606-0746	0536-0815	0532-0831	25
26	0711-0510	0636-0546	0652-0716	0605-0747	0535-0816	0532-0831	26
27	0711-0511	0634-0548	0650-0717	0604-0748	0535-0817	0533-0831	27
28	0710-0513	0633-0549	0649-0718	0603-0749	0534-0817	0533-0831	28
29	0709-0514		0647-0719	0601-0750	0534-0818	0533-0831	29
30	0708-0515		0645-0720	0600-0751	0533-0819	0534-0831	30
31	0707-0516		0644-0721		0533-0820		31

# Snowfall

## Oct 2012 to Apr 2013

City	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Aurora (Central)	4.7	1.0	5.6	2.8	9.9			24.0
Brighton	5.6	3.0	2.0	3.3	12.8			26.7
Broomfield	5.9	2.0	4.8	4.2	10.7			27.6
Castle Rock	4.0	0.2	10.8	2.1	16.1			33.2
Colo Sprgs Airport	Trace	0.3	5.4	3.1	10.6			19.4
Denver DIA	5.5	1.7	5.2	4.6	14.1			31.1
Denver Downtown	4.8	0.7	4.9	3.1	15.2			28.7
Golden	5.8	1.4	10.7	4.5	21.3			43.7
Fort Collins	4.5	0.4	5.8	2.6	10.6			23.9
Highlands Ranch	4.9	1.2	11.3	4.9	21.7			44.0
Lakewood	4.9	1.0	5.8	4.0	14.1			29.8
Littleton	4.5	1.5	10.3	4.2	19.0			39.5
Parker	3.8	2.0	9.1	2.8	17.5			35.2
Sedalia - Hwy 67	4.0	TR	10.0	2.0	21.0			37.0
Thornton	6.2	2.0	4.5	3.6	14.6			30.9
Westminster	5.2	2.0	6.1	4.0	16.1			33.4
Wheat Ridge	4.4	1.3	5.7	4.5	16.8			32.7

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