

The Weather Wire

September 2013

Volume 20 Number 9

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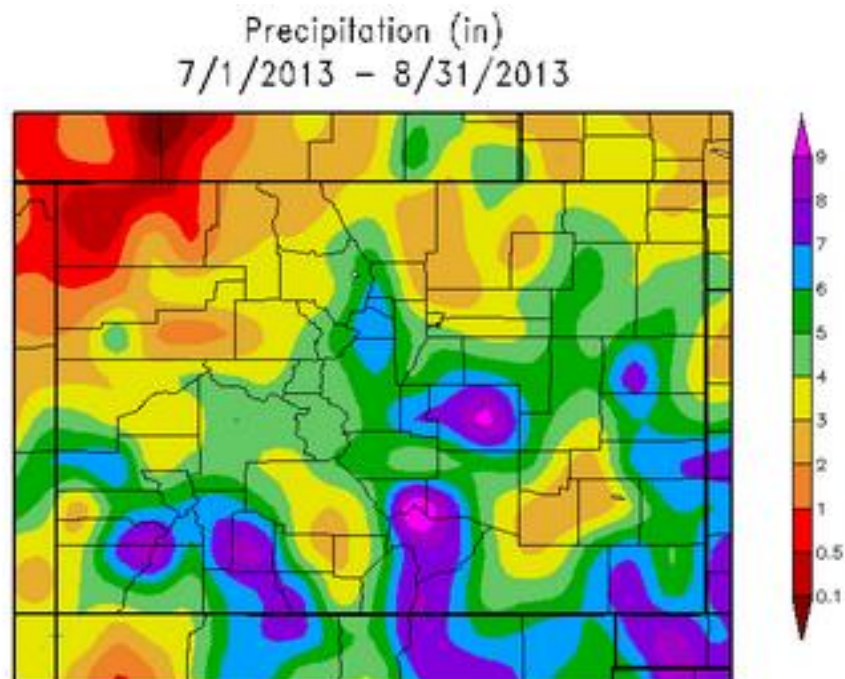
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Monsoon Summary Southern Colorado

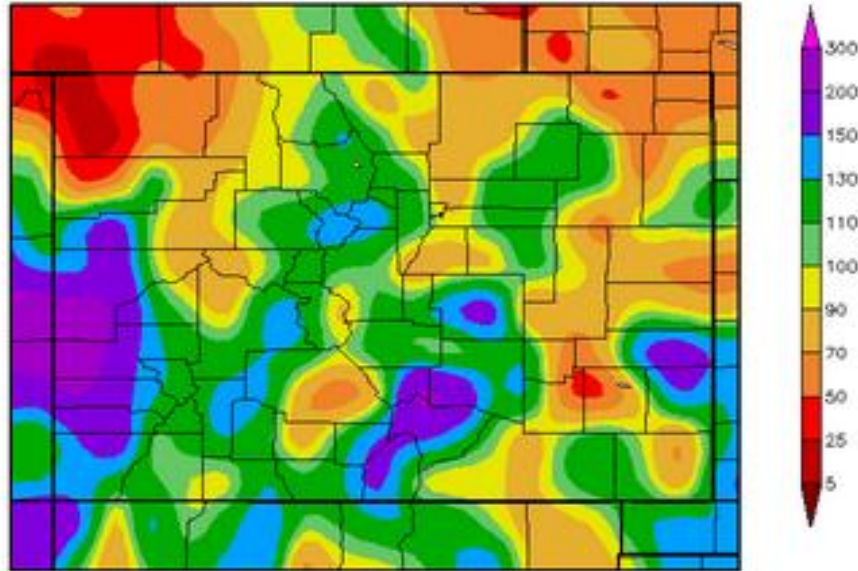
The NWS in Pueblo did a great job breaking down the monsoon months of July and August over southern Colorado. Below is their summary and can be found on the web at:

http://www.crh.noaa.gov/news/display_cmsstory.php?wfo=pub&storyid=96771&source=0

The southwest monsoon came alive across Colorado in the beginning of July and has remained very active across the state through the end of August, bringing beneficial rains to much of south central and southeast Colorado. The much needed rainfall has brought some relief to the drought which has had its grip on the area over the past several years. The following graphics depict total precipitation recorded across the state since July 1st, along with the percentage of normal precipitation over the same time frame.



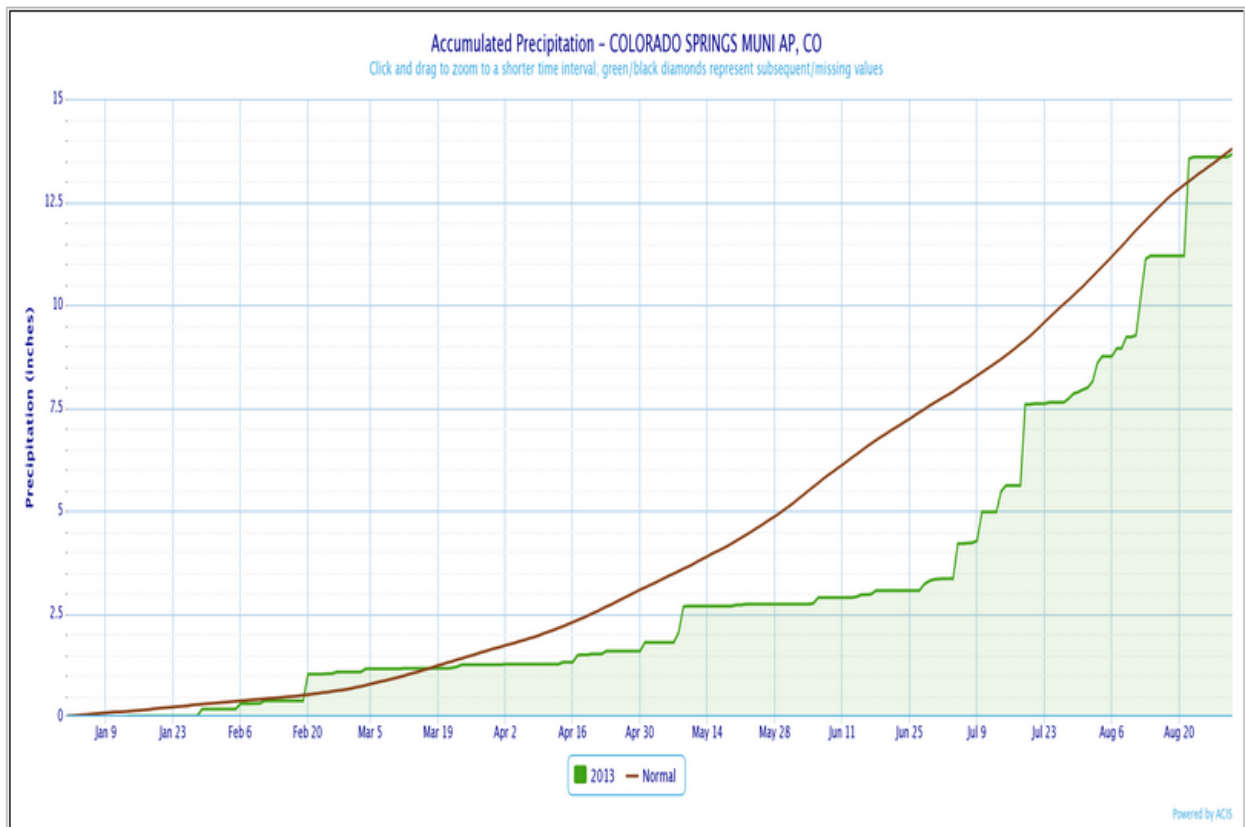
Percent of Normal Precipitation (%) 7/1/2013 – 8/31/2013



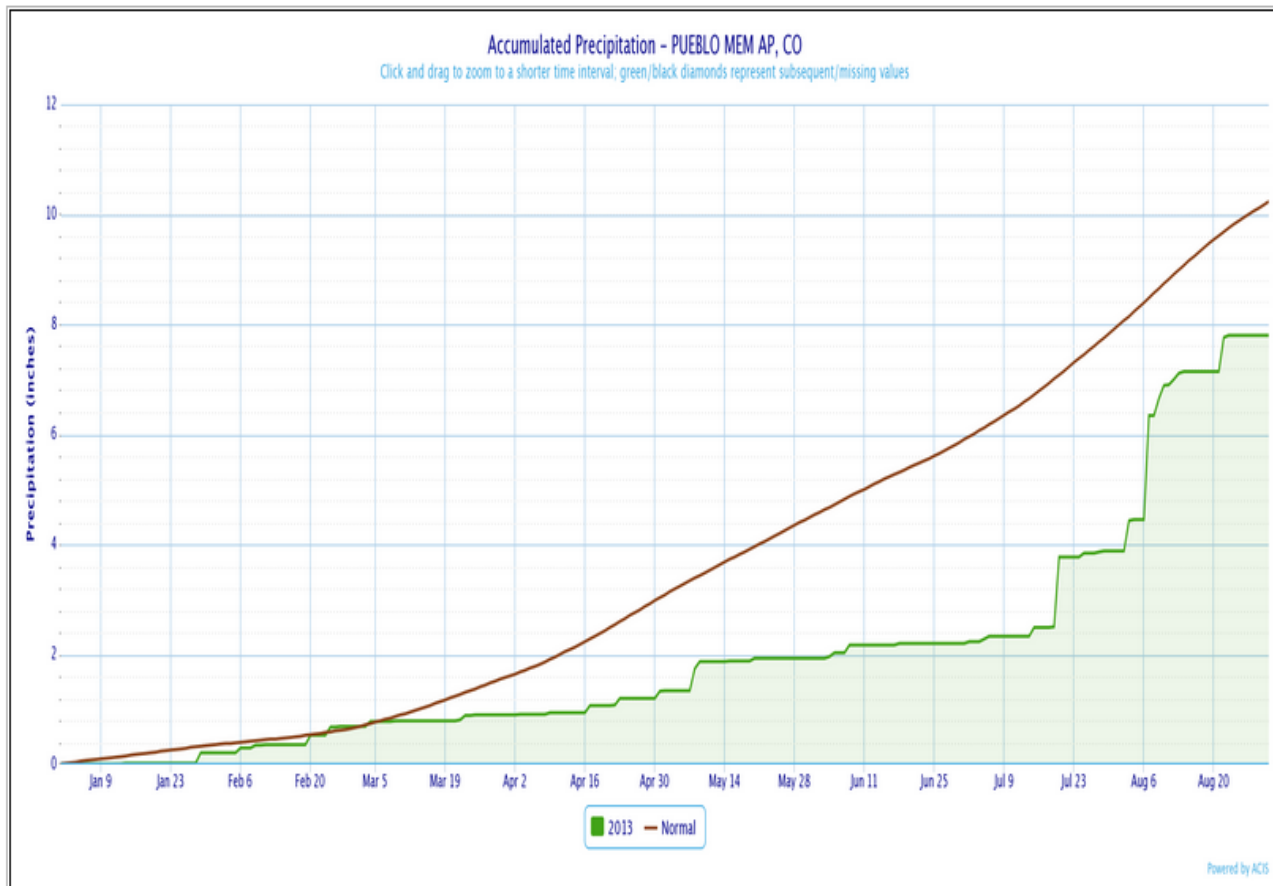
Generated 9/1/2013 at HPRCC using provisional data.

Regional Climate Centers

Since July 1st, Colorado Springs has received **10.33** inches of precipitation. This is 4.15 inches above the combined average July and August precipitation totals and makes 2013 the second wettest July and August on record, behind the 11.74 inches of precipitation received in July and August of 1999. The above normal precipitation over the past two months has also helped to bring the total yearly precipitation back to near normal in Colorado Springs, with 13.66 inches recorded since January 1st.



Since July 1st, Pueblo has received **5.60** inches of precipitation. This is 1.22 inches above the combined average July and August precipitation totals and makes 2013 the 19th wettest July and August on record in Pueblo, well behind the 8.70 inches of precipitation received in July and August of 1923. The above normal precipitation over the past two month has helped to shrink the yearly precipitation deficit, with 7.80 inches now recorded since January 1st. However, Pueblo still remains over 2 inches below the average to date precipitation of 10.23 inches.



The July and August state wide precipitation graphics above also indicated near to above normal precipitation totals across the southwest and central mountains, the southeast mountains and southern I-25 corridor as well as portions of the far southeast plains, with below normal July and August precipitation across portions of the lower Arkansas River valley and northern portions of the San Luis Valley. The following graphics indicate the year to date accumulated precipitation totals at the Trinidad Airport, La Junta Airport, Lamar Airport, and the Leadville Airport.

Despite the active summer monsoon, much more precipitation will be needed to end the severe to exceptional drought which has had it grip on the area over the past two years, especially over the southeast Colorado Plains.

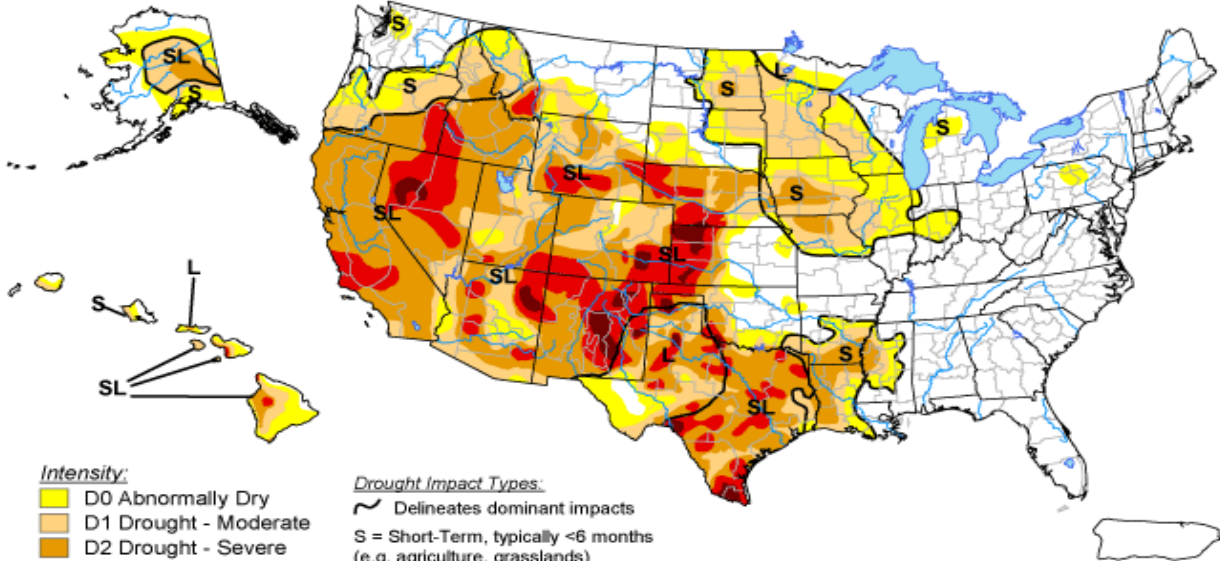
Drought Update

Extreme to exceptional drought continues over SE Colorado and into Kansas and New Mexico. There has been some improvement over the Desert SW as the monsoon season has provided beneficial rains.

U.S. Drought Monitor

August 27, 2013

Valid 7 a.m. EDT



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)

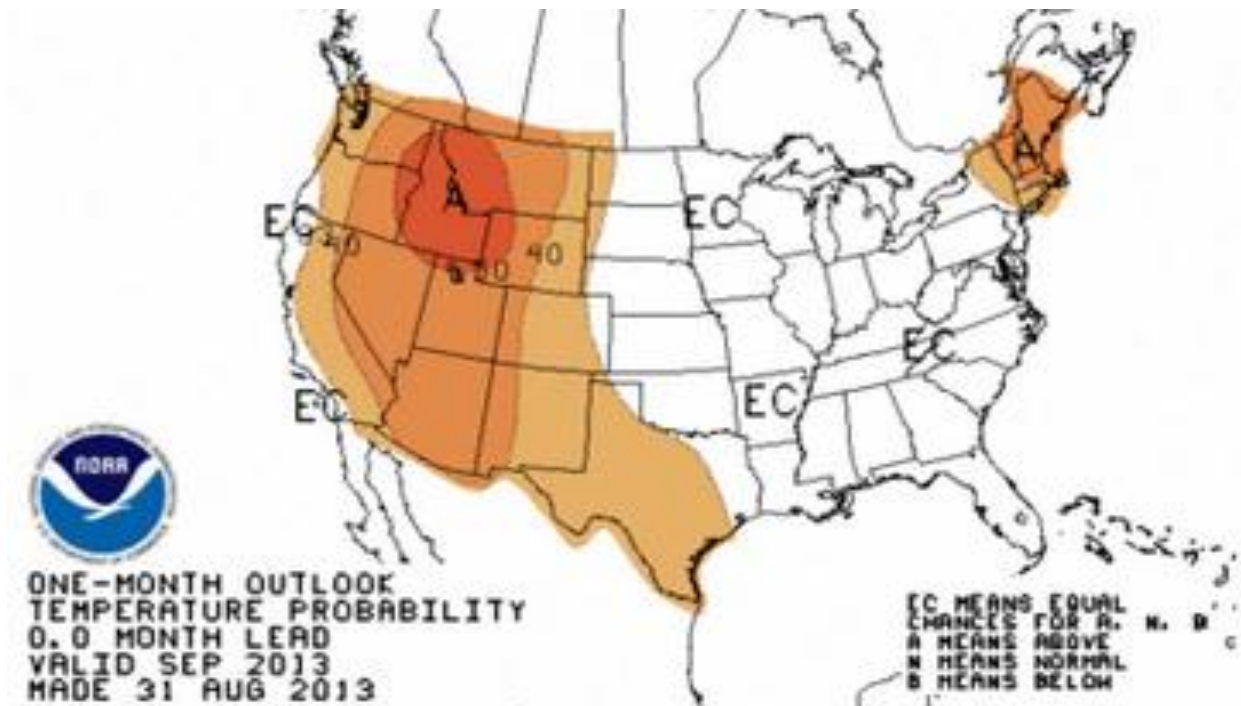
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

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



Released Thursday, August 29, 2013
 Author: Anthony Artusa, NOAA/NWS/NCEP/CPC

The map below shows forecasted temperature deviances for September 2013. Above normal temperatures are expected to continue over Colorado.



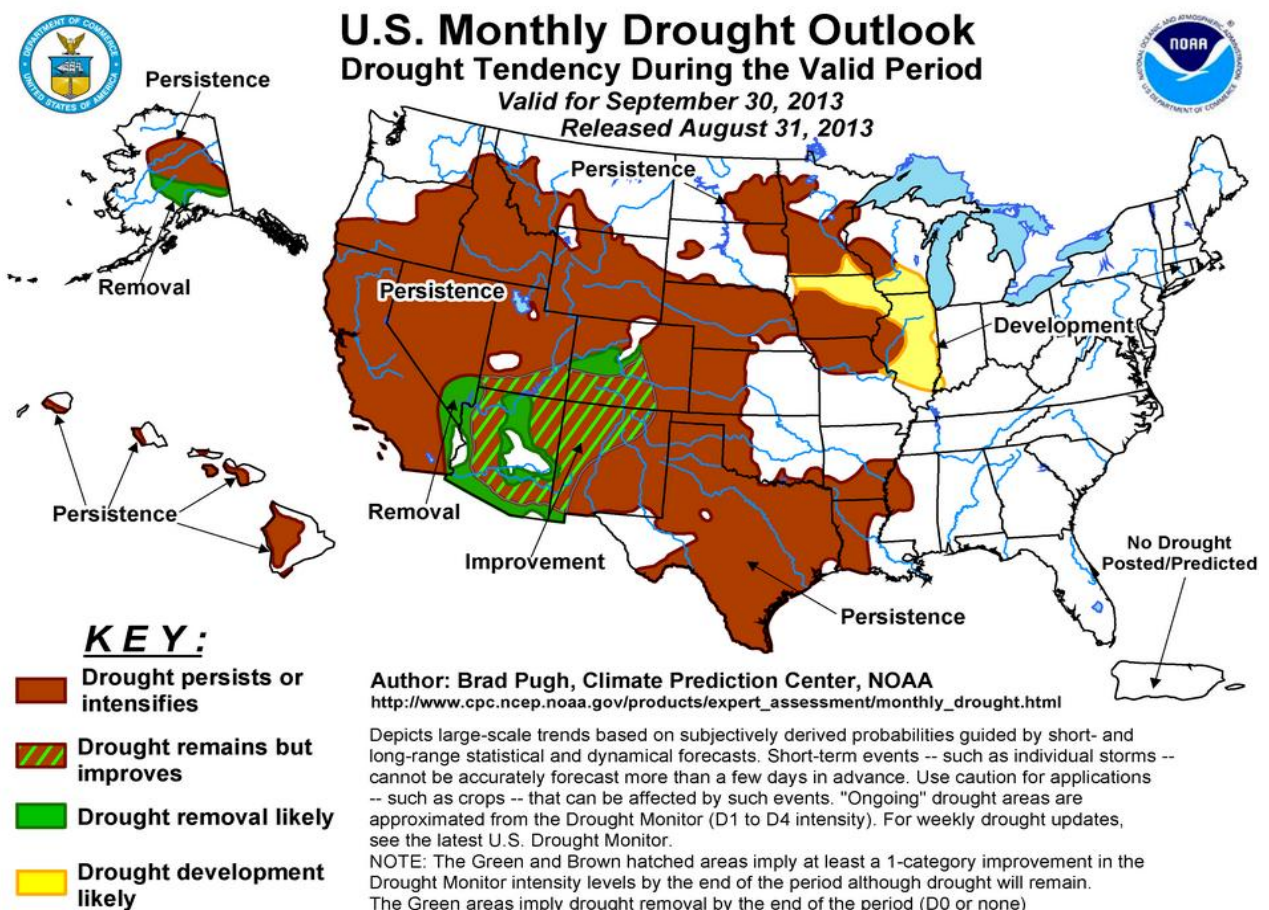
ONE-MONTH OUTLOOK
 TEMPERATURE PROBABILITY
 0.0 MONTH LEAD
 VALID SEP 2013
 MADE 31 AUG 2013

EC MEANS EQUAL CHANCES FOR A, N, B
 A MEANS ABOVE
 N MEANS NORMAL
 B MEANS BELOW

The map below shows forecasted precipitation deviances for September 2013. Normal to slightly above normal precipitation is expected over Colorado favoring the W and SW.



Drought conditions are forecast to see improvement over the Desert SW into portions of Colorado. Overall persistent drought is expected for much of the west and central plains.



August Summary

August of 2013 was well above normal in both temperature and precipitation. For the month the average high was 89.4 with average lows of 59.6 which resulted in a monthly mean temperature of 74.6 degrees which ranks as 7th warmest in Denver history. The 2.78" of rainfall measured at DIA was 1.09" above the normal of 1.69". Other areas of the Metro area such as Aurora, Wheat Ridge, Lakewood and others received higher amounts but others also received lower amounts meaning the storms that dropped the heavier rains were isolated. One area that got clobbered during August was in and around Colorado Springs which reported over 5" of rain for the month at the airport! For the year Denver now stands at 0.61" below normal. Most of the rainfall for the month occurred late from the 21-22nd with 1.95" of rain from one event. Thunderstorm activity was abundant with 17 thunderstorm days reported at DIA. There were 16 days with temperatures over 90 degrees with the highest temperature of the month reaching 99 degrees on the 20th.

August Stats

TEMPERATURE (IN DEGREES F)

AVERAGE MAX	89.4	NORMAL 87.2	DEPARTURE 2.2
AVERAGE MIN	59.8	NORMAL 57.9	DEPARTURE 1.9
MONTHLY MEAN	74.6	NORMAL 42.5	DEPARTURE 2.1
HIGHEST	99 on the 20 th		
LOWEST	52 on the 9 th		

DAYS WITH MAX 90 OR ABOVE	16	NORMAL	12
DAYS WITH MAX 32 OR BELOW	0	NORMAL	0
DAYS WITH MIN 32 OR BELOW	0	NORMAL	0
DAYS WITH MIN ZERO OR BELOW	0	NORMAL	0

TEMPERATURE RECORDS

Record high of 97 on the 17th

Record high of 99 on the 20th

Record high min of 70 on the 20th

HEATING DEGREE DAYS

MONTHLY TOTAL	0	NORMAL 10	DEPARTURE -10
SEASONAL TOTAL	0	NORMAL 16	DEPARTURE -16

COOLING DEGREE DAYS

MONTHLY TOTAL	308	NORMAL 244	DEPARTURE 64
YEARLY TOTAL	866	NORMAL 388	DEPARTURE 178

PRECIPITATION (IN INCHES)

MONTHLY TOTAL	2.78	NORMAL	1.69	DEPARTURE	1.09
YEARLY TOTAL	10.75	NORMAL	11.36	DEPARTURE	-0.61
GREATEST IN 24 HOURS	1.95" on 8/21 to 8/22				
DAYS WITH MEASURABLE PRECIP.					7

SNOWFALL (IN INCHES)

MONTHLY TOTAL	0.0	NORMAL	0.0	DEPARTURE	0.0
SEASONAL TOTAL	0.0	NORMAL	0.0	DEPARTURE	0.0
GREATEST IN 24 HOURS	0.0"				
GREATEST DEPTH	0.0"				

WIND (IN MILES PER HOUR)

AVERAGE SPEED	8.8mph
PEAK WIND GUST	55mph on the 3 rd

MISCELLANEOUS WEATHER

NUMBER OF DAYS WITH THUNDERSTORM	17	NORMAL	8
NUMBER OF DAYS WITH HEAVY FOG	2	NORMAL	1
NUMBER OF DAYS WITH HAIL	0		
NUMBER OF SUNNY DAYS	4		
NUMBER OF PARTLY CLOUDY DAYS	23		
NUMBER OF CLOUDY DAYS	4		
AVERAGE RELATIVE HUMIDITY	48%		

September Preview

Believe it or not September is the first snow producing month of the season with 1.3" of snow on average. In the over 130 years of climate history 45 of those years have recorded at least a trace of snow so there is about a 33% chance to see some snow this month. Some years have even recorded some hefty snows with 17.2" of snow back in 1971. Some of you may even remember the 8.7" of snow back in 1985. September of 2013 is unlikely to produce snow as longer range models indicate a higher likelihood of above normal temperatures due to ridge of high pressure expected to dominate the weather pattern this month. Seasonally high temperatures in September start out at 84 degrees and end the month at 72 degrees. Low temperatures begin at 54 and end the month at 42 degrees with the record low for September at a chilly 17 degrees. Almost any time after the second week of September a frost can occur with record lows below freezing every day after the 13th. For September of 2013 temperatures are expected to be above normal and precipitation is once again expected to be normal to slightly above normal. With only 0.96" of precipitation on average all it takes is one good storm for the month to get there as monsoon moisture will still linger over the first few weeks of the month before a typical dry pattern sets in before the first snows.

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

TEMPERATURE

AVERAGE HIGH	78.5
AVERAGE LOW	48.3
MONTHLY MEAN	63.4
DAYS WITH HIGH 90 OR ABOVE	3
DAYS WITH HIGH 32 OR BELOW	0
DAYS WITH LOW 32 OR BELOW	1
DAYS WITH LOWS ZERO OR BELOW	0

PRECIPITATION

MONTHLY MEAN	0.96"
DAYS WITH MEASURABLE PRECIPITATION	7
AVERAGE SNOWFALL IN INCHES	1.3"
DAYS WITH 1.0 INCH OF SNOW OR MORE	<1

MISCELLANEOUS AVERAGES

HEATING DEGREE DAYS	125
COOLING DEGREE DAYS	76
WIND SPEED (MPH)	8.0
WIND DIRECTION	South
DAYS WITH THUNDERSTORMS	8
DAYS WITH DENSE FOG	1
PERCENT OF SUNSHINE POSSIBLE	74%

EXTREMES

RECORD HIGH	105 on 8/8/1878
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RECORD LOW	40 on Multiple Dates
WARMEST	77.0 in 2011
COLDEST	66.5 in 1915
WETTEST	5.85" in 1979
DRIEST	0.02" in 1924
SNOWIEST	0.0"
LEAST SNOWIEST	0.0"

Sunrise/Sunset (July - December Denver area)

	JUL	AUG	SEP	OCT	NOV	DEC	
	SR - SS	SR - SS	SR - SS	SR - SS	SR - SS	SR - SS	
01	0534-0831	0558-0812	0627-0731	0655-0642	0728-0556	0701-0435	01
02	0535-0831	0559-0811	0628-0729	0656-0641	0729-0555	0702-0434	02
03	0535-0831	0600-0810	0629-0728	0657-0639	0630-0454	0703-0434	03
04	0536-0830	0600-0809	0630-0726	0658-0637	0631-0453	0704-0434	04
05	0536-0830	0601-0808	0631-0725	0659-0636	0632-0452	0705-0434	05
06	0537-0830	0602-0807	0631-0723	0700-0634	0634-0451	0706-0434	06
07	0538-0830	0603-0806	0632-0721	0701-0633	0635-0450	0707-0434	07
08	0538-0829	0604-0805	0633-0720	0702-0631	0636-0449	0708-0434	08
09	0539-0829	0605-0803	0634-0718	0703-0629	0637-0448	0708-0434	09
10	0540-0829	0606-0802	0635-0717	0704-0628	0638-0447	0709-0434	10
11	0540-0828	0607-0801	0636-0715	0705-0626	0639-0446	0710-0434	11
12	0541-0828	0608-0800	0637-0713	0706-0625	0640-0445	0711-0434	12
13	0542-0827	0609-0758	0638-0712	0707-0623	0642-0444	0712-0435	13
14	0542-0827	0610-0757	0639-0710	0708-0622	0643-0443	0712-0435	14
15	0543-0826	0611-0756	0640-0708	0709-0620	0644-0443	0713-0435	15
16	0544-0826	0612-0754	0641-0707	0710-0619	0645-0442	0714-0435	16
17	0545-0825	0613-0753	0642-0705	0711-0617	0646-0441	0714-0436	17
18	0546-0824	0614-0752	0643-0703	0712-0616	0647-0440	0715-0436	18
19	0546-0824	0615-0750	0644-0702	0714-0614	0648-0440	0715-0437	19
20	0547-0823	0616-0749	0645-0700	0715-0613	0649-0439	0716-0437	20
21	0548-0822	0616-0747	0646-0658	0716-0612	0651-0439	0717-0437	21
22	0549-0822	0617-0746	0646-0657	0717-0610	0652-0438	0717-0438	22
23	0550-0821	0618-0745	0647-0655	0718-0609	0653-0437	0717-0439	23
24	0551-0820	0619-0743	0648-0654	0719-0608	0654-0437	0718-0439	24
25	0551-0819	0620-0742	0649-0652	0720-0606	0655-0437	0718-0440	25
26	0552-0818	0621-0740	0650-0650	0721-0605	0656-0436	0719-0440	26
27	0553-0817	0622-0739	0651-0649	0722-0604	0657-0436	0719-0441	27
28	0554-0816	0623-0737	0652-0647	0723-0602	0658-0435	0719-0442	28
29	0555-0815	0624-0736	0653-0645	0724-0600	0659-0435	0719-0442	29
30	0556-0815	0625-0734	0654-0644	0726-0559	0700-0435	0720-0443	30
31	0557-0814	0626-0732		0727-0557		0720-0444	31

Rainfall

May 2013 to September 2013

City	May	June	July	Aug	Sept	Total
Aurora (Central)	2.68	1.10	3.62	3.58		10.98
Brighton	1.10	0.43	1.06	0.94		3.53
Broomfield	1.46	0.79	1.10	0.94		4.29
Castle Rock	1.66	0.59	0.98	1.54		4.77
Colo Sprgs Airport	1.14	0.60	4.61	5.72		12.07
Denver DIA	0.82	0.75	1.98	2.78		6.33
Denver Downtown	1.38	0.87	1.73	1.14		5.09
Golden	1.90	0.52	3.71	0.70		6.83
Fort Collins	2.07	1.05	2.03	0.86		6.01
Highlands Ranch	2.61	0.55	1.89	1.06		6.11
Lakewood	1.50	1.06	3.39	3.19		9.14
Littleton	1.54	1.02	1.06	1.02		4.64
Parker	1.85	1.85	1.18	0.98		5.86
Sedalia - Hwy 67	1.68	1.06	1.39	1.02		5.15
Thornton	1.26	0.31	1.22	1.02		3.81
Westminster	1.42	0.98	2.13	1.93		6.46
Wheat Ridge	1.57	0.98	3.23	3.03		8.81

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