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## Winter Weather Definitions

It is that time of year again to go over some of the winter weather watches and warnings and refresh ourselves with some winter weather terminology. .

The National Weather Service issues many different types of watches and warnings during the winter months. Here is what they mean:

### WINTER STORM WATCH:

A winter storm watch is issued when winter storm conditions are possible within the next 12 to 36 hours, but the timing, intensity, or occurrence may still be uncertain.

### WINTER STORM WARNING:

A winter storm warning is issued when heavy snow is occurring or will develop in the next 18 hours. The heavy snow may be accompanied by wind and blowing snow.

### BLIZZARD WARNING:

A blizzard warning is issued when the following conditions are expected for at least 3 hours: Sustained winds of 35mph or greater with considerable falling and/or drifting snow lowering visibilities to less than 1/4 mile. Remember, snow does not necessarily need to be falling and dangerous wind chills are often observed during blizzard events.

### WINTER WEATHER ADVISORY:

A **winter weather advisory for snow** is issued when these general snow accumulations are expected: Between 4 and 8 inches in 12 hours in the mountains. Between 3 and 6 inches in 12 hours at lower elevations, such as Denver Metro.

A **winter weather advisory for snow and blowing snow** is issued when falling snow is accompanied by blowing snow to

cause travel problems due to lowered visibilities and drifting snow.

A **winter weather advisory for blowing snow** is issued when wind blown snow will occasionally reduce visibilities and create a hazard for travelers.

### **FROST/FREEZE WARNING:**

Below freezing temperatures are expected and may cause significant damage to plants, crops, or fruit trees in areas unaccustomed to freezing temperatures. Usually issued for first frost/freeze of season and again in spring for late frost/freezes.

### **HIGH WIND WARNING:**

A high wind warning is issued for the following conditions: Sustained winds of 50mph for at least 1 hour, or gusts to 75mph for any duration in the mountains and foothills. Sustained winds of 40mph for at least 1 hour, or gusts to 58mph for any duration at lower elevations away from the foothills.

We as weather forecasters use different wording or terms when we describe a snow event. Whether it is just some flurries or a large winter storm we use different words that best suit the snow event that is expected.

## **Snow**

**FLURRIES** - Light snow falling for short durations. No accumulation or light dusting is all that is expected.

**SHOWERS** - Snow falling at varying intensities for brief periods of time. Some accumulation is possible. You can best relate to these by thinking about a summer shower, but instead of rain you get snow.

**SQUALLS** - Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant. Snow squalls are best known in the Great Lakes region.

**BLOWING SNOW** - Wind-driven snow that reduces visibility and causes significant drifting. Blowing snow may be snow that is falling and/or loose snow on the ground picked up by the wind.

**BLIZZARD** - Winds over 35 mph with snow and blowing snow, reducing visibility to near zero.

## **Sleet**

Rain drops that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects. However, it can accumulate like snow and cause a hazard to motorists.

## Freezing Rain

Rain that falls onto a surface with a temperature below freezing. This causes it to freeze to surfaces, such as trees, cars, and roads, forming a coating or glaze of ice. Even small accumulations of ice can cause a significant hazard.

Snow and or severe cold can be potentially life threatening and every year we see cold and snow related deaths.

Everyone is potentially at risk during winter storms. The actual threat to you depends on your specific situation. Recent observations indicate the following:

- Related to ice and snow:
  - About 70% occur in automobiles.
  - About 25% are people caught out in the storm.
- Related to exposure to cold:
  - 50% are people over 60 years old.
  - Over 75% are males.
  - About 20% occur in the home.

## Frostbite

Frostbite is damage to body tissue caused by that tissue being frozen. Frostbite causes a loss of feeling and a white or pale appearance in extremities, such as fingers, toes, ear lobes, or the tip of the nose. If symptoms are detected, get medical help immediately! If you must wait for help, slowly re-warm affected areas. However, if the person is also showing signs of hypothermia, warm the body core before the extremities.

## Hypothermia: Low Body Temperature

*Warning signs* - uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness, and apparent exhaustion.

*Detection* - Take the person's temperature. If below 95F (35C), immediately seek medical care! If medical care is not available, begin warming the person slowly. Warm the body core first. If needed, use your own body heat to help. Get the person into dry clothing, and wrap them in a warm blanket covering the head and neck. Do not give the person alcohol, drugs, coffee, or any hot beverage or food; warm broth is better. Do not warm extremities (arms and legs) first! This drives the cold blood toward the heart and can lead to heart failure.

## Wind Chill

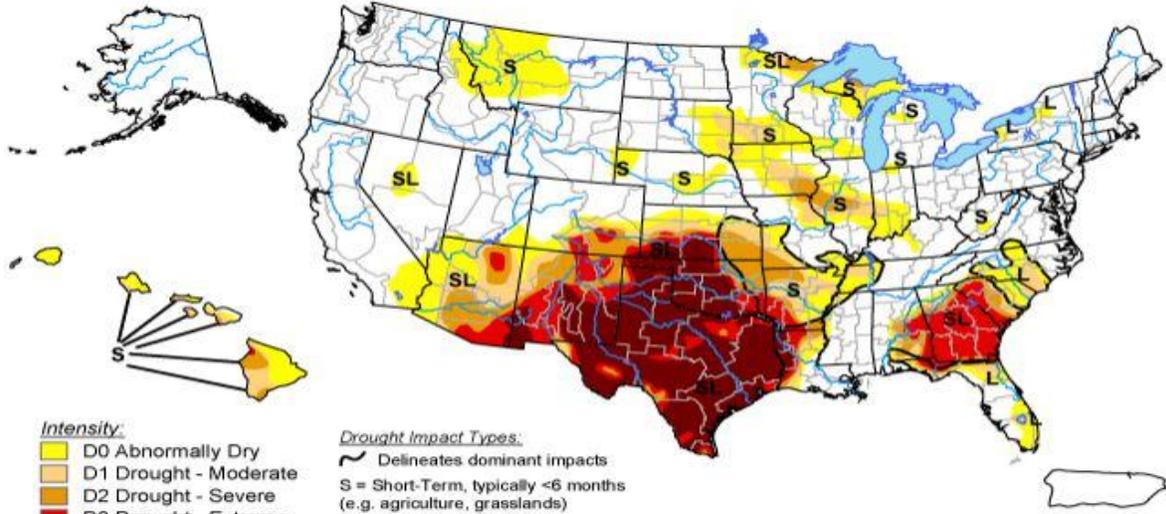
The wind chill is based on the rate of heat loss from exposed skin caused by combined effects of wind and cold. As the wind increases, heat is carried away from the body at an accelerated rate, driving down the body temperature. Animals are also affected by wind chill.

Colorado sees its share of snow during the winter months. The best time to prepare for the next snow is now while the weather is mild and dry. Take an inventory of your winter supplies both for the car and the home and stock in items that you need. Be prepared and the winter snows will be a lot less bothersome this year.

## Drought Update

Drought conditions persist in parts of southern and southeastern Colorado. By far the state suffering from drought the most is Texas as the whole state is experiencing extreme to exceptional drought conditions.

# U.S. Drought Monitor September 27, 2011 Valid 8 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)

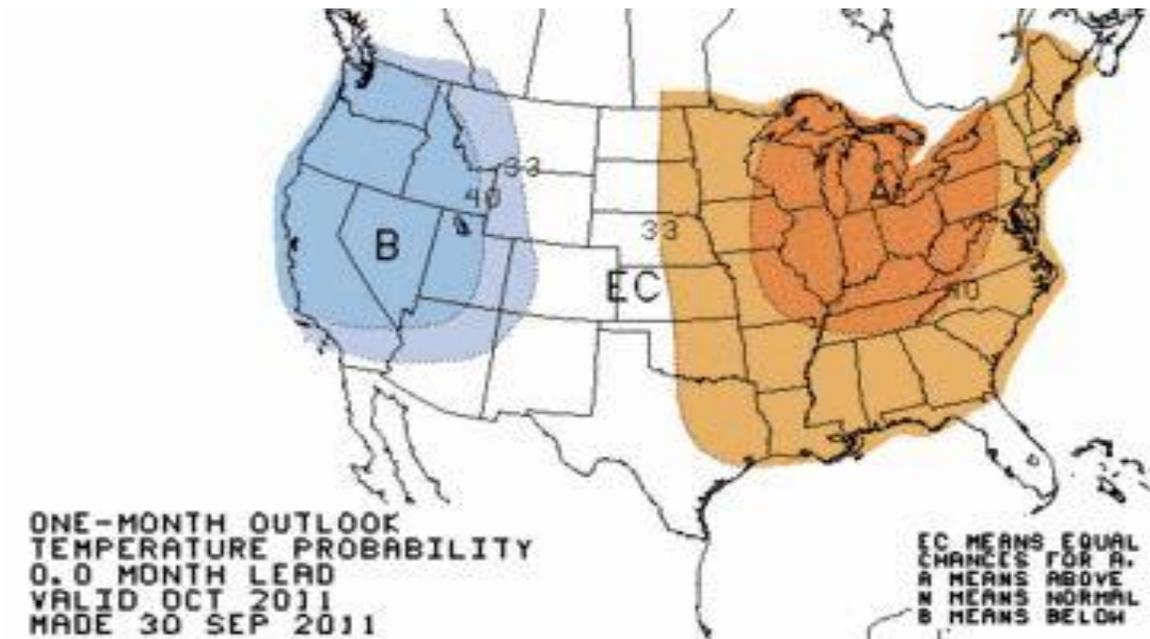
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



Released Thursday, September 29, 2011  
 Author: Michael Brewer/Liz Love-Brotak, NOAA/NESDIS/NCDC

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

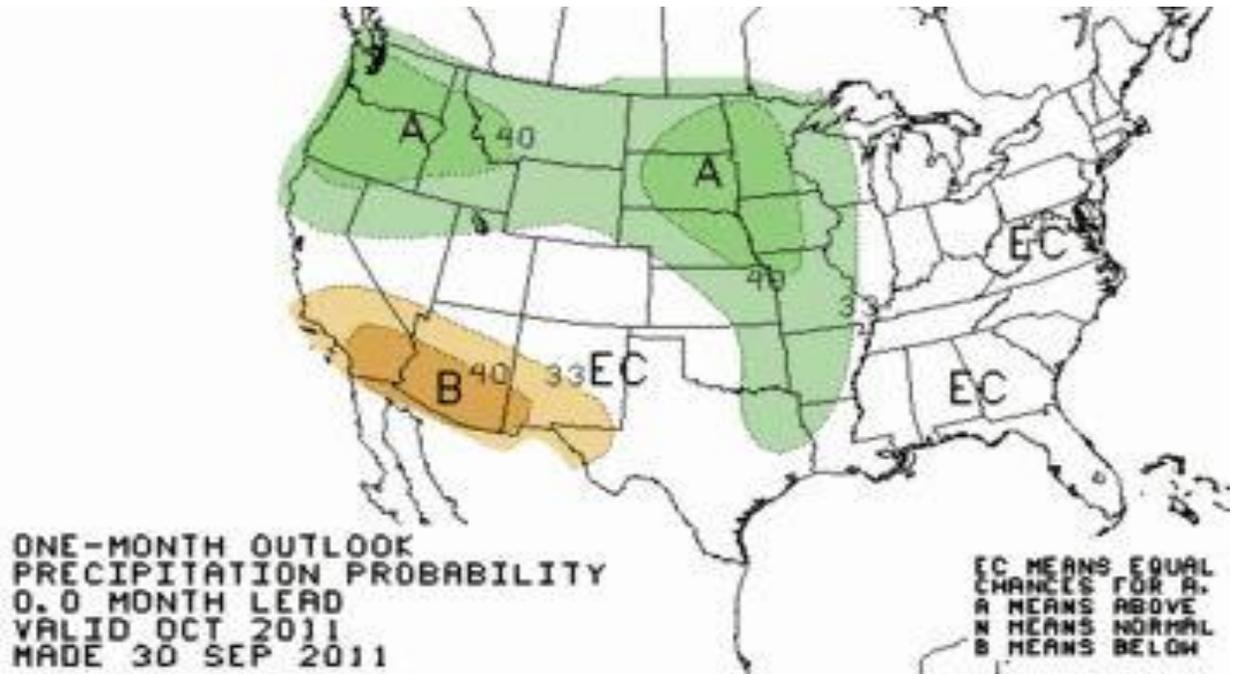
The map below shows forecasted temperature deviances for October 2011. Below normal temperatures are expected over the western half of the US with above normal temperatures over the central and eastern portions of the Country. Colorado is located in an area where near normal temperatures are expected with slightly cooler than normal conditions over western parts of the state.



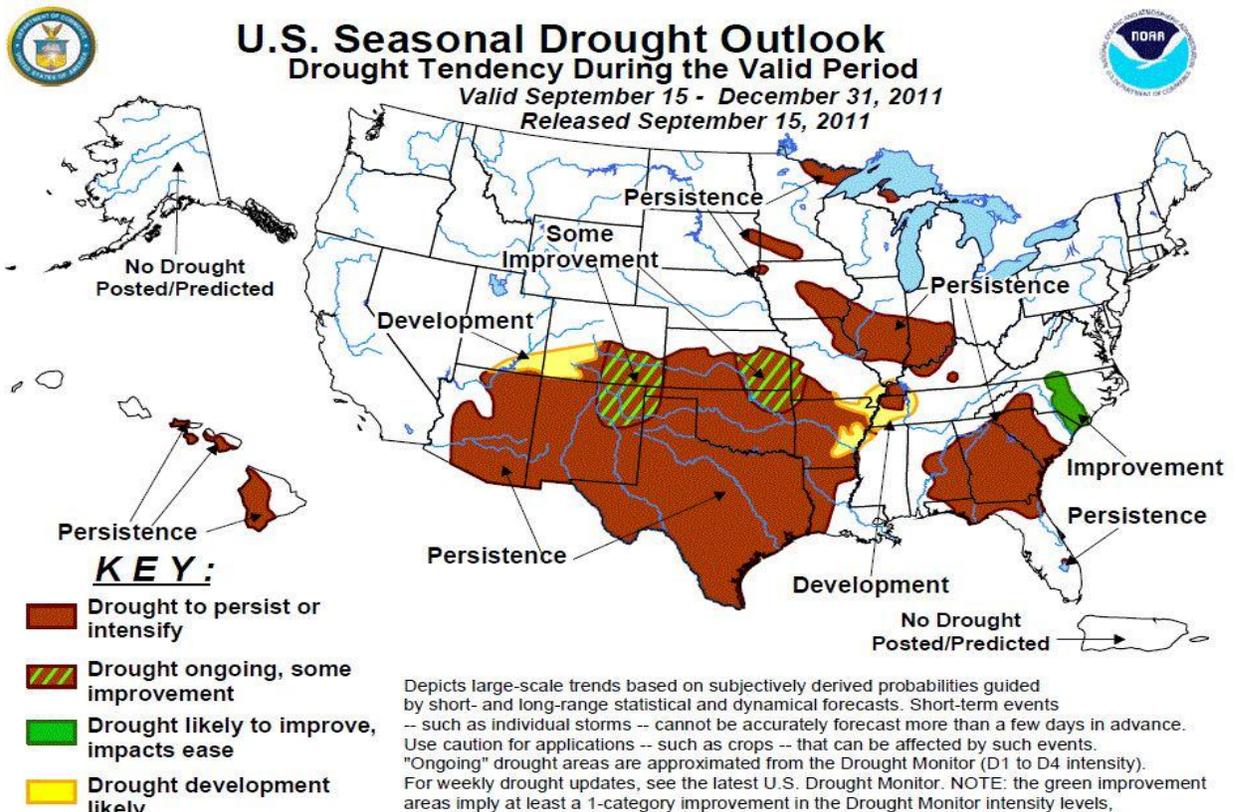
ONE-MONTH OUTLOOK  
 TEMPERATURE PROBABILITY  
 0.0 MONTH LEAD  
 VALID OCT 2011  
 MADE 30 SEP 2011

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

The map below shows forecasted precipitation deviances for October 2011. Near normal precipitation amounts are expected across the state of Colorado. Some southern parts of the state may experience below normal precipitation.



There could be some drought conditions developing in southwestern Colorado over the next couple months. This could lead to below normal snowfall in the San Juan Mountains to start off the ski season.



## September Summary

September of 2011 had near normal temperature and precipitation. The average temperatures for September was 62.4 degrees, which was 0.8 degrees above normal. A high of 96 degrees was recorded on the 1st, with a low of 38 degrees on the 21st. The 68 degree morning low on the 1st set a record high minimum for that date. After the 1st, there were no more 90 degree days. The seasonal total of 90 degree days is 50, which puts 2011 in a tie for 9th place for 90 degree days. Only 0.89 inches of precipitation fell at DIA (Denver's official reporting station). This is 0.09" below normal. Six days in September had measurable precipitation, with the greatest in a 24 hour period of 0.56" on the 14th. There was no snowfall recorded during the month, with the last measureable snow recorded in September occurring in 2000. 3 thunderstorms were observed at DIA. The peak wind speed recorded was 53mph from the northwest on the 2nd.

## September Stats

### TEMPERATURE (IN DEGREES F)

AVERAGE MAX	78.6	NORMAL 78.5	DEPARTURE 0.1
AVERAGE MIN	49.9	NORMAL 48.3	DEPARTURE 1.6
MONTHLY MEAN	64.2	NORMAL 63.4	DEPARTURE 0.8
HIGHEST	96 on the 1 <sup>st</sup>		
LOWEST	38 on the 21st		

DAYS WITH MAX 90 OR ABOVE	1	NORMAL	3.4
DAYS WITH MAX 32 OR BELOW	0	NORMAL	0.0
DAYS WITH MIN 32 OR BELOW	0	NORMAL	0.8
DAYS WITH MIN ZERO OR BELOW	0	NORMAL	0.0

### TEMPERATURE RECORDS

No temperature records tied or broken.

### HEATING DEGREE DAYS

MONTHLY TOTAL	95	125	5	DEPARTURE -30
SEASONAL TOTAL	95	NORMAL	136	DEPARTURE -41

### COOLING DEGREE DAYS

MONTHLY TOTAL	78	NORMAL	76	DEPARTURE 2
YEARLY TOTAL	941	NORMAL	764	DEPARTURE 177

### PRECIPITATION (IN INCHES)

MONTHLY TOTAL	0.89	NORMAL	0.98	DEPARTURE	-0.09
YEARLY TOTAL	14.14	NORMAL	13.39	DEPARTURE	1.34
GREATEST IN 24 HOURS	0.56" on the 14 <sup>th</sup>				
DAYS WITH MEASURABLE PRECIP.					6

### SNOWFALL (IN INCHES)

MONTHLY TOTAL	0.0	NORMAL	1.1	DEPARTURE	-1.1
SEASONAL TOTAL	0.0	NORMAL	1.1	DEPARTURE	-1.1
GREATEST IN 24 HOURS	0.0"				
GREATEST DEPTH	0.0"				

### WIND (IN MILES PER HOUR)

AVERAGE SPEED	8.8mph
PEAK WIND GUST	53mph from the WNW

### MISCELLANEOUS WEATHER

NUMBER OF DAYS WITH THUNDERSTORM	NA	NORMAL	4
NUMBER OF DAYS WITH HEAVY FOG	1	NORMAL	1
NUMBER OF DAYS WITH HAIL	0		
NUMBER OF SUNNY DAYS	12		
NUMBER OF PARTLY CLOUDY DAYS	15		
NUMBER OF CLOUDY DAYS	3		
AVERAGE RELATIVE HUMIDITY	44%		

## October Preview

The first full month of fall is typically fairly pleasant at least for the first couple of weeks with the weather becoming a bit more unsettled at the end of the month. The first hard freeze usually occurs in October during the first week or two and the season's first snow usually begins to fly. Last October there was not any measureable snowfall at all. On average the first snow occurs by the 15<sup>th</sup> of the month with around 4" of snow on average. Temperatures are commonly in the 60s for highs with cool overnights in the 30s. Monthly precipitation is just under an inch at 0.97". There are typically 5 days during the month with precipitation and one day with an inch of snow or more. This is the time of year to blow out the sprinklers and get ready to rake the leaves as there are on average 9 days with overnight lows below 32 degrees.

### ENVER'S NOVEMBER CLIMATOLOGICALLY NORMAL (NORMAL PERIOD 1971-2000)

#### TEMPERATURE

AVERAGE HIGH	65.3
AVERAGE LOW	36.6
MONTHLY MEAN	50.9
DAYS WITH HIGH 90 OR ABOVE	0
DAYS WITH HIGH 32 OR BELOW	<1
DAYS WITH LOW 32 OR BELOW	9
DAYS WITH LOWS ZERO OR BELOW	0

#### PRECIPITATION

MONTHLY MEAN	0.97"
DAYS WITH MEASURABLE PRECIPITATION	5
AVERAGE SNOWFALL IN INCHES	4.1"
DAYS WITH 1.0 INCH OF SNOW OR MORE	1

#### MISCELLANEOUS AVERAGES

HEATING DEGREE DAYS	440
COOLING DEGREE DAYS	5
WIND SPEED (MPH)	7.8mph
WIND DIRECTION	South
DAYS WITH THUNDERSTORMS	1
DAYS WITH DENSE FOG	1
PERCENT OF SUNSHINE POSSIBLE	72%

#### EXTREMES

RECORD HIGH	90 on 10/1/1892
RECORD LOW	-2 on 10/29/1917
WARMEST	59.9 in 1950
COLDEST	39.0 in 1969

WETTEST  
 DRIEST  
 SNOWIEST  
 LEAST SNOWIEST

4.17" in 1969  
 Trace in 1934  
 31.2" in 1969  
 0.0"

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

	JUL	AUG	SEP	OCT	NOV	DEC	
	sr - ss						
01	0535-0831	0558-0814	0627-0732	0655-0644	0728-0558	0701-0436	01
02	0536-0831	0559-0813	0628-0731	0656-0642	0729-0557	0702-0435	02
03	0536-0831	0600-0812	0629-0729	0657-0641	0730-0556	0703-0435	03
04	0537-0831	0601-0811	0630-0728	0658-0639	0731-0554	0704-0435	04
05	0537-0831	0602-0809	0631-0726	0659-0637	0733-0553	0705-0435	05
06	0538-0831	0603-0808	0632-0725	0700-0636	0634-0452	0706-0435	06
07	0538-0830	0604-0807	0633-0723	0701-0634	0635-0451	0707-0435	07
08	0539-0830	0605-0806	0634-0721	0702-0633	0636-0450	0708-0435	08
09	0540-0830	0606-0805	0635-0720	0703-0631	0637-0449	0709-0435	09
10	0540-0829	0607-0804	0636-0718	0704-0630	0638-0448	0709-0435	10
11	0541-0829	0608-0802	0637-0717	0705-0628	0639-0447	0710-0435	11
12	0542-0829	0608-0801	0637-0715	0706-0627	0641-0447	0711-0435	12
13	0542-0828	0609-0800	0638-0713	0707-0625	0642-0446	0712-0436	13
14	0543-0828	0610-0758	0639-0712	0709-0624	0643-0445	0713-0436	14
15	0544-0827	0611-0757	0640-0710	0710-0622	0644-0444	0713-0436	15
16	0545-0827	0612-0756	0641-0708	0711-0621	0645-0443	0714-0436	16
17	0545-0826	0613-0754	0642-0707	0712-0619	0646-0443	0715-0437	17
18	0546-0825	0614-0753	0643-0705	0713-0618	0647-0442	0715-0437	18
19	0547-0825	0615-0752	0644-0703	0714-0616	0648-0441	0716-0437	19
20	0548-0824	0616-0750	0645-0702	0715-0615	0650-0441	0716-0438	20
21	0549-0823	0617-0749	0646-0700	0716-0613	0651-0440	0717-0438	21
22	0549-0823	0618-0747	0647-0659	0717-0612	0652-0439	0717-0439	22
23	0550-0822	0619-0746	0648-0657	0718-0611	0653-0439	0718-0439	23
24	0551-0821	0620-0745	0649-0655	0719-0609	0654-0438	0718-0440	24

25 0552-0820 | 0621-0743 | 0650-0654 | 0720-0608 | 0655-0438 | 0719-0440 25  
 26 0553-0819 | 0622-0742 | 0651-0652 | 0721-0607 | 0656-0437 | 0719-0441 26  
 27 0554-0818 | 0623-0740 | 0652-0650 | 0722-0605 | 0657-0437 | 0719-0442 27  
 28 0555-0818 | 0624-0739 | 0653-0649 | 0724-0604 | 0658-0437 | 0720-0442 28

29 0556-0817 | 0624-0737 | 0654-0647 | 0725-0603 | 0659-0436 | 0720-0443 29  
 30 0556-0816 | 0625-0736 | 0655-0645 | 0726-0601 | 0700-0436 | 0720-0444 30  
 31 0557-0815 | 0626-0734 | | 0727-0559 | | 0720-0445 31

## Rainfall

### June 2011 to Sept 2011

City	June	July	Aug	Sept	Total
Aurora (Central)	2.09	4.88	0.67	1.38	9.02
Brighton	0.79	6.10	0.35	0.75	7.99
Broomfield	1.14	4.09	0.28	0.94	6.45
Castle Rock	1.38	2.76	1.57	1.06	6.77
Colo Sprgs Airport	0.26	4.90	1.49	5.91	12.56
Denver DIA	2.43	3.41	0.30	0.89	7.03
Denver Downtown	1.42	3.86	0.04	0.94	6.26
Golden	2.26	3.12	0.44	1.66	7.48
Fort Collins	2.20	2.12	0.19	1.75	6.26
Highlands Ranch	1.22	3.62	0.63	1.10	6.57
Lakewood	2.36	5.00	1.26	1.73	10.35
Littleton	1.46	2.32	0.28	1.18	4.96
Parker	2.76	4.65	0.51	1.02	8.94
Sedalia - Hwy 67	1.81	2.13	2.09	1.46	7.49
Thornton	0.94	4.69	0.04	0.71	6.38
Westminster	1.29	4.00	0.06	1.33	6.68
Wheatridge	1.42	4.49	0.16	1.14	7.21

**Skyview Weather**  
 2350 N Rocky View Rd  
 Castle Rock, CO 80108

Phone: (303) 688-9175  
 Fax: (303) 380-3338

E-mail: [tim@SkyviewWeather.com](mailto:tim@SkyviewWeather.com)  
 On the web at [www.SkyviewWeather.com](http://www.SkyviewWeather.com)

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