

The Weather Wire

May 2012

Volume 19 Number 5

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Severe Weather Information from NOAA

Thunderstorms affect relatively small areas when compared with hurricanes and winter storms. The typical thunderstorm is 15 miles in diameter and lasts an average of 30 minutes. Despite their small size, ALL thunderstorms are dangerous! Of the estimated 100,000 thunderstorms that occur each year in the United States, about 10 percent are classified as severe.

Tornadoes - Although tornadoes occur in many parts of the world, they are found most frequently in the United States.....

- A tornado is a violently rotating column of air extending from a thunderstorm to the ground.
- Tornadoes cause an average of 70 fatalities and 1,500 injuries in the U.S. each year.
- The strongest tornadoes have rotating winds of more than 250 mph.
- Tornadoes can be one mile wide and stay on the ground over 50 miles.
- Tornadoes may appear nearly transparent until dust and debris are picked up or a cloud forms within the funnel. The average tornado moves from southwest to northeast, but tornadoes have been known to move in any direction.
- The average forward speed is 30 mph but may vary from nearly stationary to 70 mph.
- Waterspouts are tornadoes which form over warm water. They can move onshore and cause damage to coastal areas.

Lightning...

- Causes an average of about 60 fatalities and 300 injuries each year.
- Lightning occurs in all thunderstorms; each year lightning strikes the United States 25 million times.
- The energy from one lightning flash could light a 100-watt light bulb for more than 3 months.

- Most lightning fatalities and injuries occur when people are caught outdoors in the summer months during the afternoon and evening.
- Lightning can occur from cloud-to-cloud, within a cloud, cloud-to-ground, or cloud-to-air.
- Many fires in the western United States and Alaska are started by lightning.
- The air near a lightning strike is heated to 50,000°F--hotter than the surface of the sun!
- The rapid heating and cooling of the air near the lightning channel causes a shock wave that results in thunder.

Straight-line Winds...

- Straight-line winds are responsible for most thunderstorm wind damage.
- Winds can exceed 100 mph!
- One type of straight-line wind, the downburst, is a small area of rapidly descending air beneath a thunderstorm
- A downburst can cause damage equivalent to a strong tornado and can be extremely dangerous to aviation.
- A “dry microburst” is a downburst that occurs with little or no rain. These destructive winds are most common in the western United States

Flash Flooding...

- Is the #1 cause of deaths associated with thunderstorms...more than 140 fatalities each year
- Most flash flood fatalities occur at night and most victims are people who become trapped in automobiles.
- Six inches of fast-moving water can knock you off your feet; a depth of two feet will cause most vehicles to float.

Hail...

- Strong rising currents of air within a storm, called updrafts, carry water droplets to a height where freezing occurs.
- Ice particles grow in size, becoming too heavy to be supported by the updraft, and fall to the ground.
- Causes more than \$1 billion in damage to property and crops each year.
- Large stones fall at speeds faster than 100 mph.

Terms to know:

Tornado - A violently rotating column of air, usually pendant to a cumulonimbus, with circulation reaching the ground. It nearly always starts as a funnel cloud and may be accompanied by a loud roaring noise. On a local scale, it is the most destructive of all atmospheric phenomena

Severe Thunderstorm - A thunderstorm that produces a tornado, winds of at least 58 mph (50 knots), and/or hail at least 1 inch in diameter. Structural wind

damage may imply the occurrence of a severe thunderstorm.

Flash Flood - A flood which is caused by heavy or excessive rainfall in a short period of time, generally less than 6 hours. Also, at times a dam failure can cause a flash flood, depending on the type of dam and time period during which the break occurs.

Tornado Watch: Tornadoes are possible in your area. Remain alert for approaching storms. Know what counties or parishes are in the watch area by listening to NOAA Weather Radio or your local radio/television outlets.

Severe Thunderstorm Watch: Tells you when and where severe thunderstorms are likely to occur. Watch the sky and stay tuned to know when warnings are issued.

Flash Flood Watch - Issued to indicate current or developing hydrologic conditions that are favorable for flash flooding in and close to the watch area, but the occurrence is neither certain or imminent.

Tornado Warning: A tornado has been sighted or indicated by weather radar.

Severe Thunderstorm Warning: Issued when severe weather has been reported by spotters or indicated by radar. Warnings indicate imminent danger to life and property to those in the path of the storm.

Flash Flood Warning - Issued to inform the public, emergency management, and other cooperating agencies that flash flooding is in progress, imminent, or highly likely.

The article above is from NOAA and can be found in its entirety on the web at: <http://www.noaawatch.gov/themes/severe.php>



Picture above is from the 2009 SW Douglas County/Elbert County Tornado. Not all tornadoes form over flat ground.

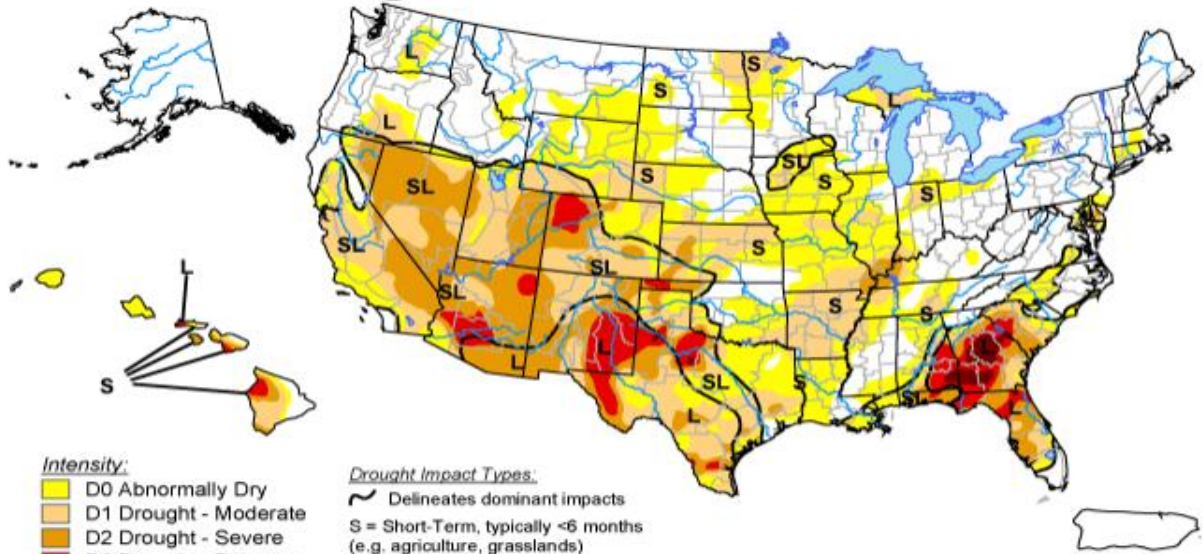
Drought Update

With abnormally dry conditions during the month of March, April and May drought is currently developing over portions northeastern Colorado. Drought conditions are becoming more severe and even extreme in portions of west and northwestern Colorado.

U.S. Drought Monitor

June 5, 2012

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)

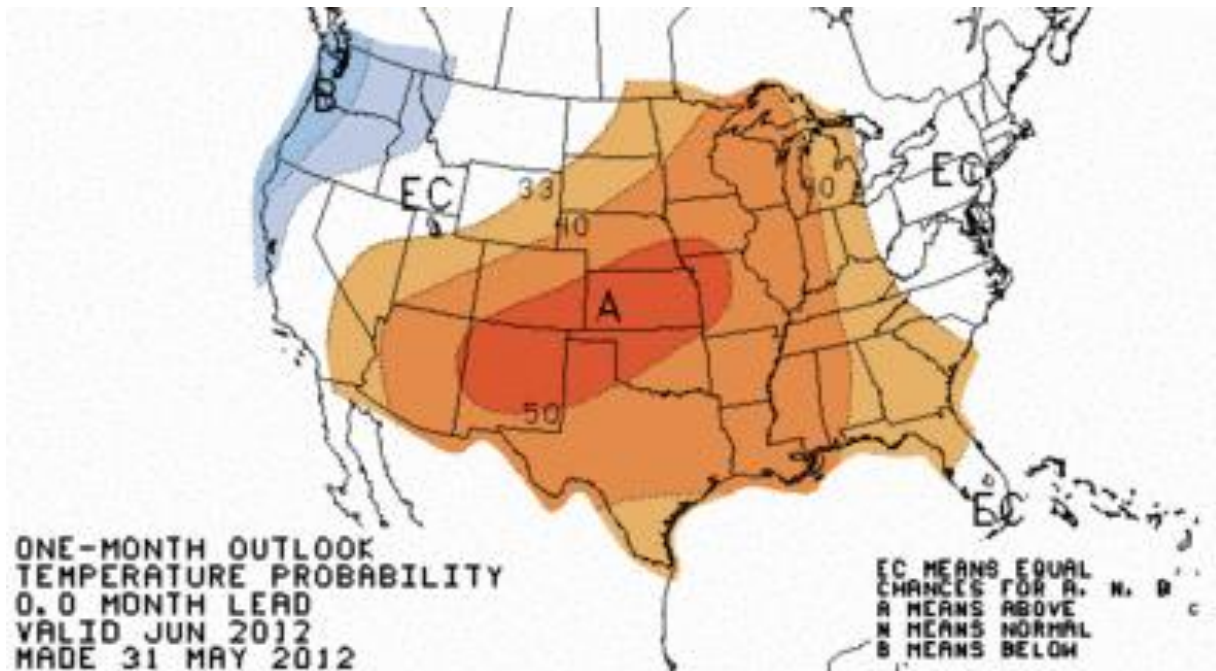
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

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

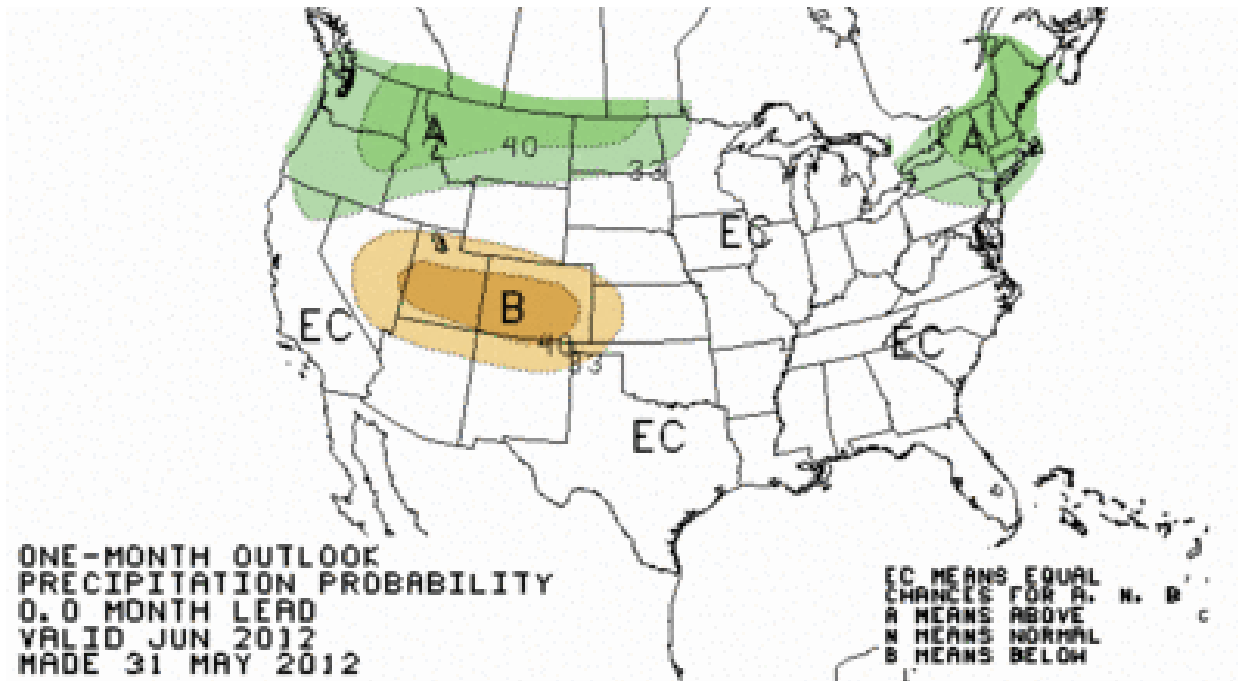


Released Thursday, June 7, 2012
Author: David Miskus, NOAA/NWS/NCEP/CPC

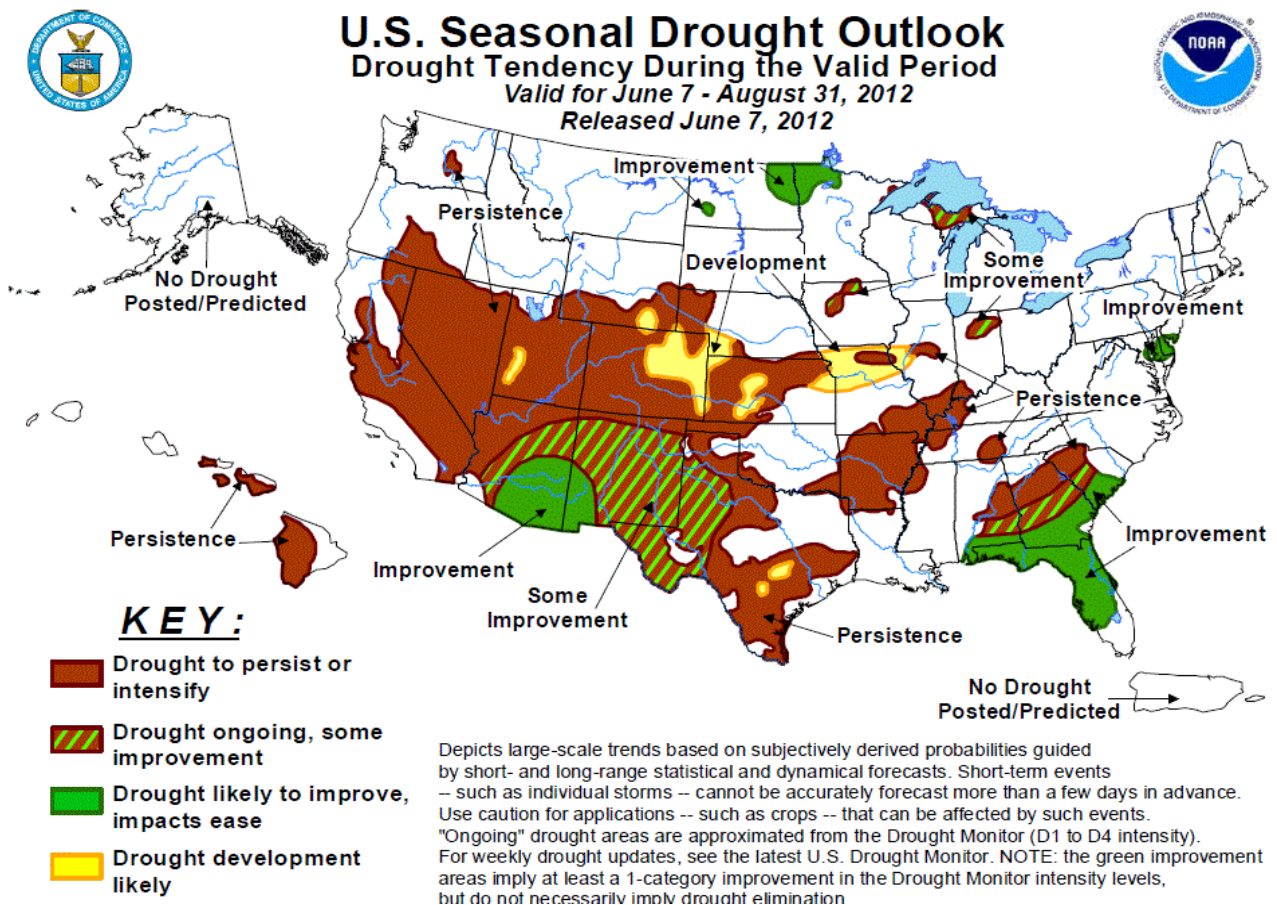
The map below shows forecasted temperature deviances for June 2012. Above normal to well above normal temperatures are likely over the entire state of Colorado. Combined with below normal precipitation fire danger will continue to be a concern.



The map below shows forecasted precipitation deviances for June 2012. Below normal precipitation is expected to continue over the state.



Drought conditions are expected to persist and/or intensify over the majority of Colorado with drought development over northeastern portions of the state.



May Summary

After the driest March in Denver history and below normal precipitation in April the month of May needed to provide good moisture for the Front Range but it did not deliver. May of 2012 was well below normal in precipitation with 1.01" recorded at DIA compared to 2.15" on average. For the year precipitation is now 3.59" which is 1.87" below the normal of 5.46" and drought is developing or becoming worse over the entire state. Temperatures were above normal as well with average daily highs nearly 4 degrees above normal. Overnight lows were about 3 degrees above normal. There were two new temperature records with new record highs of 88 on the 4th and 93 on the 22nd. There was not any snow during the month which will result in 55.6" of total snowfall for the winter season, 1.1" below the normal of 56.7". There were 6 days with thunderstorms reported and one day with hail reported at DIA. The average monthly relative humidity was 45%. Compared to last May this year was very dry. May of 2011 tallied 4.79" of precipitation which is more than double the average and was the 7th wettest all time.

May Stats

TEMPERATURE (IN DEGREES F)

AVERAGE MAX	75.4	NORMAL 71.5	DEPARTURE 3.9
AVERAGE MIN	45.5	NORMAL 42.7	DEPARTURE 2.8
MONTHLY MEAN	60.5	NORMAL 57.1	DEPARTURE 3.4
HIGHEST	93 on the 22 nd		
LOWEST	36 on the 13 th		

DAYS WITH MAX 90 OR ABOVE	2	NORMAL	1
DAYS WITH MAX 32 OR BELOW	0	NORMAL	0
DAYS WITH MIN 32 OR BELOW	0	NORMAL	2
DAYS WITH MIN ZERO OR BELOW	0	NORMAL	0

TEMPERATURE RECORDS

Record Highs of 88 on the 4th and 93 on the 22nd.

HEATING DEGREE DAYS

MONTHLY TOTAL	178	NORMAL 265	DEPARTURE -87
SEASONAL TOTAL	5393	NORMAL 5966	DEPARTURE -603

COOLING DEGREE DAYS

MONTHLY TOTAL	45	NORMAL 21	DEPARTURE 24
YEARLY TOTAL	51	NORMAL 22	DEPARTURE 29

PRECIPITATION (IN INCHES)

MONTHLY TOTAL	1.01	NORMAL	2.15	DEPARTURE	-1.14
YEARLY TOTAL	3.59	NORMAL	5.46	DEPARTURE	-1.87
GREATEST IN 24 HOURS	0.60" on the 23 rd				
DAYS WITH MEASURABLE PRECIP.					6

SNOWFALL (IN INCHES)

MONTHLY TOTAL	0.0	NORMAL	1.0	DEPARTURE	-1.0
SEASONAL TOTAL	55.6	NORMAL	56.7	DEPARTURE	-1.1
GREATEST IN 24 HOURS	NA				
GREATEST DEPTH	NA				

WIND (IN MILES PER HOUR)

AVERAGE SPEED	10.2mph
PEAK WIND GUST	52mph from the South

MISCELLANEOUS WEATHER

NUMBER OF DAYS WITH THUNDERSTORM	6	NORMAL	6
NUMBER OF DAYS WITH HEAVY FOG	2	NORMAL	1
NUMBER OF DAYS WITH HAIL	1		
NUMBER OF SUNNY DAYS	9		
NUMBER OF PARTLY CLOUDY DAYS	18		
NUMBER OF CLOUDY DAYS	4		
AVERAGE RELATIVE HUMIDITY	45%		

June Preview

June of 2012 has already created some fireworks with strong thunderstorms producing large damaging hail over portions of the Front Range including Colorado Springs, Castle Rock, Aurora, Parker and other Front Range and NE plains communities. There has even been flooding rainfall with Flash Flood Warnings issued by the NWS. Even though some isolated areas have already experienced a good deal of precipitation this month in just one day the overall trend is to continue to be below normal in precipitation and above normal in temperature. There will be bouts of severe weather as June is known for tornadoes and hail in Colorado with 10 thunderstorm days on average. There are more tornadoes in June on average than any other Calendar month during the year. Temperatures begin to moderate overnight and lows are commonly above 50 degrees which allows warmer climate crops in the garden to begin to flourish. Daytime highs are commonly in the 80s and can even push 100 degrees towards the end of the month. On average there are 6 days with temperatures of 90 degrees or more. This year there will likely be closer to 10-12 90 degree days during the month. There have been a few years in Denver history with measureable snow in June with 0.5" in 1953 and a trace as recently as 1974 but it is very rare.

DENVER'S NOVEMBER CLIMATOLOGICALLY NORMAL (NORMAL PERIOD 1971-2000)

TEMPERATURE

AVERAGE HIGH	82.1
AVERAGE LOW	53.0
MONTHLY MEAN	67.6
DAYS WITH HIGH 90 OR ABOVE	6
DAYS WITH HIGH 32 OR BELOW	0
DAYS WITH LOW 32 OR BELOW	0
DAYS WITH LOWS ZERO OR BELOW	0

PRECIPITATION

MONTHLY MEAN	1.56"
DAYS WITH MEASURABLE PRECIPITATION	9
AVERAGE SNOWFALL IN INCHES	0.0"
DAYS WITH 1.0 INCH OF SNOW OR MORE	0

MISCELLANEOUS AVERAGES

HEATING DEGREE DAYS	60
COOLING DEGREE DAYS	136
WIND SPEED (MPH)	8.9mph
WIND DIRECTION	South
DAYS WITH THUNDERSTORMS	10
DAYS WITH DENSE FOG	Less than 1
PERCENT OF SUNSHINE POSSIBLE	70%

EXTREMES

RECORD HIGH	104 on 6/26/1994
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RECORD LOW
 WARMEST
 COLDEST
 WETTEST
 DRIEST
 SNOWIEST
 LEAST SNOWIEST

30 on 6/2/1951
 73.5 in 1994
 60.6 in 1967
 4.96" in 1882
 Trace in 1890
 0.4" in 1919
 0.0"

Sunrise/Sunset (January - June Denver area)

	JAN	FEB	MAR	APR	MAY	JUN	
	sr - ss	sr - ss	sr - ss	sr - ss	sr - ss	sr - ss	
01	0721-1646	0708-1719	0632-1753	0643-1925	0600-1955	0534-2022	01
02	0721-1647	0707-1720	0631-1754	0642-1926	0559-1956	0533-2023	02
03	0721-1648	0706-1722	0629-1755	0640-1927	0557-1957	0533-2024	03
04	0721-1649	0705-1723	0628-1756	0639-1928	0556-1958	0533-2024	04
05	0721-1649	0704-1724	0626-1757	0637-1929	0555-1959	0533-2025	05
06	0721-1650	0703-1725	0625-1758	0635-1930	0554-2000	0532-2025	06
07	0721-1651	0702-1726	0623-1759	0634-1931	0553-2001	0532-2026	07
08	0721-1652	0701-1728	0622-1800	0632-1932	0552-2002	0532-2027	08
09	0721-1653	0700-1729	0620-1801	0631-1933	0551-2002	0532-2027	09
10	0721-1654	0659-1730	0618-1802	0629-1934	0550-2003	0532-2028	10
11	0720-1655	0658-1731	0717-1903	0628-1935	0549-2004	0531-2028	11
12	0720-1656	0657-1732	0715-1904	0626-1936	0548-2005	0531-2029	12
13	0720-1657	0655-1733	0714-1905	0625-1937	0547-2006	0531-2029	13
14	0720-1658	0654-1735	0712-1906	0623-1938	0546-2007	0531-2029	14
15	0719-1659	0653-1736	0710-1907	0622-1939	0545-2008	0531-2030	15
16	0719-1701	0652-1737	0709-1908	0620-1940	0544-2009	0532-2030	16
17	0718-1702	0650-1738	0707-1909	0619-1941	0543-2010	0532-2030	17
18	0718-1703	0649-1739	0706-1910	0617-1942	0542-2011	0532-2031	18
19	0718-1704	0648-1740	0704-1911	0616-1943	0542-2012	0532-2031	19
20	0717-1705	0646-1741	0702-1913	0614-1944	0541-2013	0532-2031	20
21	0716-1706	0645-1743	0701-1914	0613-1945	0540-2014	0532-2031	21
22	0716-1707	0644-1744	0659-1915	0612-1946	0539-2014	0533-2032	22
23	0715-1709	0642-1745	0658-1916	0610-1947	0539-2015	0533-2032	23
24	0715-1710	0641-1746	0656-1917	0609-1948	0538-2016	0533-2032	24
25	0714-1711	0639-1747	0654-1918	0608-1949	0537-2017	0533-2032	25
26	0713-1712	0638-1748	0653-1919	0606-1950	0537-2018	0534-2032	26
27	0712-1713	0637-1749	0651-1920	0605-1951	0536-2019	0534-2032	27
28	0712-1714	0635-1750	0650-1921	0604-1952	0536-2019	0535-2032	28
29	0711-1716	0634-1752	0648-1922	0602-1953	0535-2020	0535-2032	29
30	0710-1717		0646-1923	0601-1954	0535-2021	0536-2032	30
31	0709-1718		0645-1924		0534-2022		31

Rainfall

Oct 2011 to Apr 2012

City	May	Jun	Jul	Aug	Sept	Total
Aurora (Central)	1.38					1.38
Brighton	1.89					1.89
Broomfield	1.30					1.30
Castle Rock	1.38					1.38
Colo Sprgs Airport	0.78					0.78
Denver DIA	1.01					1.01
Denver Downtown	1.46					1.46
Golden	2.06					2.06
Fort Collins	1.70					1.70
Highlands Ranch	1.57					1.57
Lakewood	2.24					2.24
Littleton	1.54					1.54
Parker	1.26					1.26
Sedalia - Hwy 67	1.42					1.42
Thornton	0.87					0.87
Westminster	1.73					1.73
Wheatridge	1.85					1.85

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