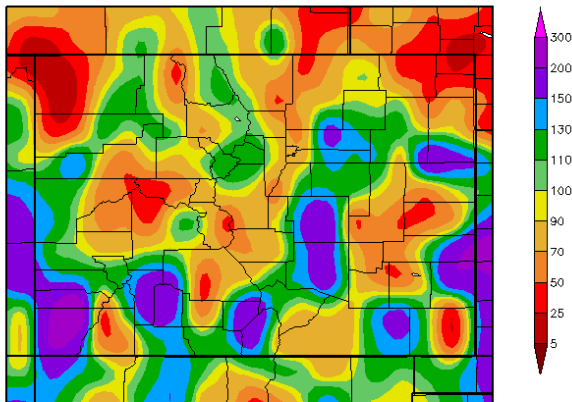




## AUGUST PRECIP HIT AND MISS

The percent of normal precipitation map is quite colorful for the month of August. Depending on where you live, it could have been either very wet or dry with completely opposite conditions just a town or county away. Where the water did fall, it was very much needed, and we did see a little bit of drought relief in some of the hardest hit areas of our state.

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



Generated 9/2/2013 at HPRCC using provisional data.

Regional Climate Centers

## 10 WETTEST CoCoRaHS STATIONS IN COLORADO DURING AUGUST 2013

Station	Location	Precipitation
CO-EP-291	Colorado Springs 8.2 SE	8.04
CO-EP-256	Peyton 8.3 SW	7.82
CO-EP-237	Falcon 2.3 NNE	7.45
CO-EP-24	Black Forest 4.5 SSW	6.9
CO-KC-84	Stratton .25 WNW	6.11
CO-EP-17	Monument 2.1 ENE	6.09
CO-DG-67	Beverly Hills 2.0 WNW	6.08
CO-PU-14	Pueblo 17 W	5.99
CO-EP-180	Colorado Springs 6.6 SE	5.65
CO-EP-175	Manitou Springs 1.2 ESE	5.47

## AUG. 3<sup>RD</sup> SEVERE WEATHER

Saturday, Aug. 3<sup>rd</sup> was one of the most active severe weather days we saw this season across Colorado, in particular, along the I-25 urban corridor between Denver and Fort Collins. Severe thunderstorms developed during the mid-afternoon across Larimer County producing hail the size of a grapefruit near Wellington. The storms slowly moved south, hitting eastern Boulder County extremely hard with torrential rain, hail and high winds.

CoCoRaHS station CO-BO-271 near Erie reported 3.25" of rain in just 60 minutes during the storm, with an event total of 3.40". The heavy rain flooded a section of I-25 north of Highway 7. Localized wind damage was reported in Erie; some thought there had been a small tornado, but it was ruled as straight-line winds from the severe storm.



The hail pad from CoCoRaHS Station CO-BO-271 after severe thunderstorms moved through on August 3, 2013.



# Colorado CoCoRaHS

September 2013  
Volume 1, Issue 5



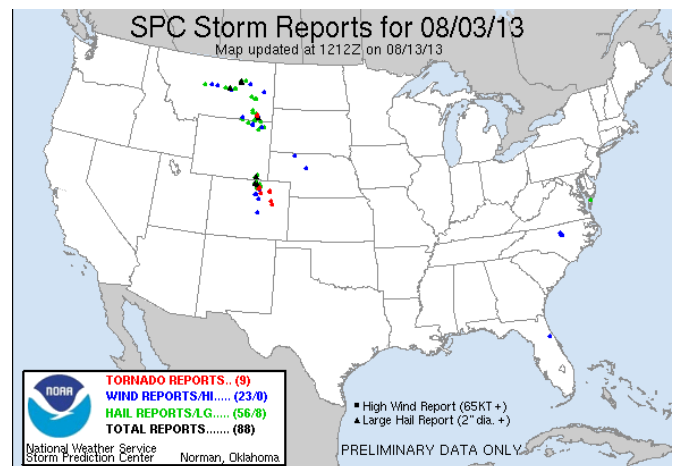
**Trees uprooted by straight-line winds near CoCoRaHS Station CO-BO-271 after severe thunderstorms moved through on August 3, 2013.**



**Street lamp blown over during a severe thunderstorm near CoCoRaHS Station CO-BO-271 on August 3, 2013.**



**Standing water and a construction trailer blown over near CoCoRaHS Station CO-BO-271 after severe thunderstorms moved through on August 3, 2013.**



**Severe weather reports from August 3, 2013 in the United States.**

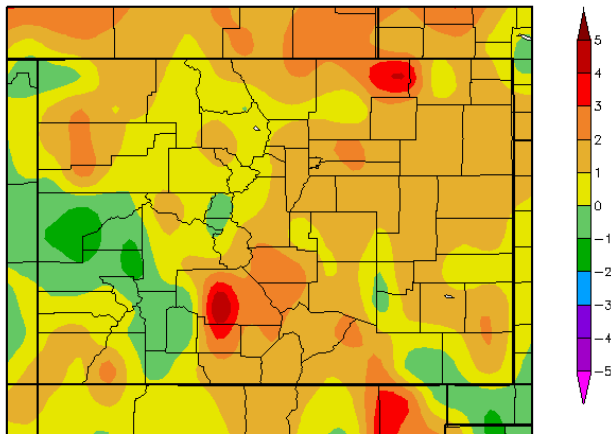


## THERMOSTAT CRANKED UP DURING AUGUST

August is known for being hot! You may have heard the phrase, “Dog Days of August,” at some point in your life. It actually dates back to Ancient Rome. The Romans associated hot weather with the star Sirius, known as the “Dog Star,” because it was the brightest in the constellation Canis Major and in the night sky from late July through late August.

August 2013 started off near normal across Colorado, but quickly heated up, to near record levels in some locations.

Departure from Normal Temperature (F)  
8/1/2013 – 8/31/2013



Generated 9/2/2013 at HPRDC using provisional data.

Regional Climate Centers

**OBSERVER SPOTLIGHT** This month we are highlighting Ed Groenert, a dedicated observer from Colorado’s Grand Valley. Ed wasn’t always a weather buff, but having a son who is a meteorologist and a wife

that also loves the weather eventually rubbed off!

**Why did you join CoCoRaHS?** I joined CoCoRaHS because another observer in the network found out that I had a son who is a meteorologist. She asked me and now I am dedicated to “the cause”. My son is a lead meteorologist in Boise, ID. His intense enthusiasm in weather was fueled by his mom who is a true weather crazy. Some of her love of weather has worn off on me.

**What have you learned from measuring precipitation?** The first thing I learned is the fickleness of weather and also the different microclimates we have in the Grand Valley. It helps that we are on a mesa and can watch a lot of the weather as it marches across the valley. It helps to have a meteorologist in the family that can answer the weather questions that my wife and I are constantly asking him.

**Has being a CoCoRaHS observer made you more aware of climate?** Yes, extremely aware of the Grand Junction weather as well as the rest of the US. The local NWS radar gets a lot of use in our house. We (Nancy and I) spend a lot of time observing the weather 360 degrees around our house. I also have infected 2 other friends to become CoCoRaHS members. They are now hooked.

**Ed Groenert,**  
operator of  
CoCoRaHS Station  
CO-ME-67 in Mesa  
County.





# Colorado CoCoRaHS

September 2013  
Volume 1, Issue 5

## SLIGHT DROUGHT IMPROVEMENT, BUT NOT OUT OF THE WOODS YET

The following two maps highlight how the drought showed some slight improvement during the month of August, in particular, in the foothills west of Fort Collins and across portions of southeast Colorado. However, the situation is still dire for many farming and ranching communities across our state as we move toward climatologically what is the drier part of the annual water cycle.

When we talk about the water cycle and monitoring water resources, this is done based off the water year, which begins on October 1st and ends September 30<sup>th</sup> of the following year.

If you haven't been as diligent as you would like to be with your CoCoRaHS reporting, the beginning of the water year is always a great time to re-establish solid record keeping; even those boring streaks of zero reports!

The U.S. Drought Monitor is a weekly product that comes out on Thursdays. You can use the following link to track drought both in Colorado and across the nation.

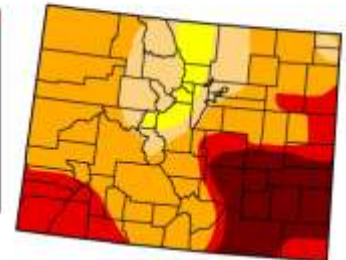
<http://droughtmonitor.unl.edu/>

You can also look at historic maps back to the late 1990s and see how drought can change on different time scales across the nation.

## U.S. Drought Monitor Colorado

July 30, 2013  
Valid 7 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0-D1	D2-D3	D4-D5	D6-D7	D8
Current	0.00	100.00	99.26	81.43	31.91	19.32
Last Week (7/23/2013 issue)	0.00	100.00	99.40	83.12	31.17	16.72
3 Weeks Ago (7/6/2013 issue)	0.00	100.00	100.00	79.08	26.96	17.61
Start of Calendar Year (2013/01/01 issue)	0.00	100.00	100.00	95.06	53.47	15.40
Start of Water Year (2012/10/01 issue)	0.00	100.00	100.00	100.00	81.75	16.89
One Year Ago (2012/07/30 issue)	0.00	100.00	100.00	90.70	73.67	2.82



**Legend:**

- D0: Extremely Dry
- D1: Drought - Moderate
- D2: Drought - Severe
- D3: Drought - Extreme
- D4: Drought - Exceptional
- D5: Drought - Catastrophic
- D6: Drought - Devastating
- D7: Drought - Catastrophic
- D8: Drought - Catastrophic

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

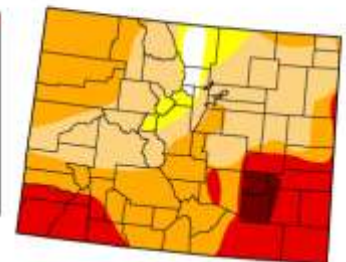
<http://droughtmonitor.unl.edu>

USDA  
Released Thursday, August 1, 2013  
Brian Fuchs, National Drought Mitigation Center

## U.S. Drought Monitor Colorado

August 27, 2013  
Valid 7 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0-D1	D2-D3	D4-D5	D6-D7	D8
Current	1.91	88.09	93.81	89.86	22.17	2.48
Last Week (8/20/2013 issue)	1.53	86.47	93.81	81.74	25.07	3.96
3 Weeks Ago (8/03/2013 issue)	0.00	100.00	94.16	71.71	23.96	16.64
Start of Calendar Year (2013/01/01 issue)	0.00	100.00	100.00	95.06	53.47	15.40
Start of Water Year (2012/10/01 issue)	0.00	100.00	100.00	100.00	81.75	16.89
One Year Ago (2012/07/30 issue)	0.00	100.00	100.00	90.90	80.30	3.64



**Legend:**

- D0: Extremely Dry
- D1: Drought - Moderate
- D2: Drought - Severe
- D3: Drought - Extreme
- D4: Drought - Exceptional
- D5: Drought - Catastrophic
- D6: Drought - Devastating
- D7: Drought - Catastrophic
- D8: Drought - Catastrophic

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

<http://droughtmonitor.unl.edu>

USDA  
Released Thursday, August 29, 2013  
Anthony Arnusa, NOAA/NWS/NCEP/CPC



## AUGUST FUN FACTS FROM AROUND COLORADO

\*As of 9 pm on 9-2-13

- 1,217 stations filed at least one daily report
- 866 stations reported at least half of the month
- 264 stations filed a report every day
- Wettest station:  
CO-EP-291 (Colo. Springs 8.2 SE)  
with 8.04" of precipitation
- Driest station that reported all 31 days:  
CO-LR-636 (Fort Collins 2.8 NE)  
with 0.08" of precipitation
- 56 stations filed a multi-day accumulation report
- There was no measurable snow reported during August by CoCoRaHS observers.

## SIGNIFICANT WEATHER REPORTS

There were 124 significant weather reports filed during the month of August – a huge thanks to those who were able to do so!

These reports are read in real-time by the National Weather Service and can be very helpful to forecasters trying to verify radar during severe weather.

These reports do not take the place of your daily precipitation report; they are simply just a snapshot of what is currently happening at your location.

A few of the reports include...

- 0.70" of rain in 10 minutes at station CO-WE-71 near Greeley along with a few minutes of pea-sized hail
- 0.90" of rain in 15 minutes at station CO-EP-237 near Falcon. Gutters are onto the sidewalks, some hail, lightning and thunder. DirectTV is out and Lucy the Beagle asked for her thunder shirt.
- 1.02" of rain in 50 minutes at station CO-FM-64 near Cotopaxi – most rain seen here since I built in 2000.
- 2.62" of rain in 60 minutes at station CO-WE-350 near Windsor
- 2.85" of rain in 120 minutes at station CO-EP-247 near Gleneagle
- 3.25" of rain in 60 minutes at station CO-BO-271 near Erie – trees broken, hail, basement flooded.

### Colorado Weather Trivia

**Question:** What location has the smallest average annual precipitation?

**Answer:** Center (Saguache County) with a 7.04" annual average from 1981-2010.



## HAIL REPORTS DURING AUGUST

There were 120 hail reports filed from around Colorado during August. Thankfully, most were small. The Top 6 hail reports from CoCoRaHS observers include...

- 4" diameter at station CO-LR-990 (Wellington 6.7 NW) on Aug. 3
- 2" diameter at station CO-CH-21 (Cheyenne Wells 10.8 SE) on Aug. 6
- 1.5" diameter at station CO-WE-176 (Greeley 3.8 W) on Aug. 3
- 1.5" diameter at station CO-WE-171 (Greeley 2.6 W) on Aug. 3
- 1.25" diameter at station CO-EP-24 (Black Forest 4.5 SSW) on Aug. 14
- 1.25" diameter at station CO-LR-121 (Wellington 4.5 SE) on Aug. 3

## HELP CoCoRaHS KEEP GROWING IN COLORADO

CoCoRaHS Colorado has an ambitious goal of adding 1,000 new observers between June 1, 2013 and May 31, 2014. So far, we are at 169 and counting! The following is the count of new observers by county between June 1 and August 31 in no particular order.

- Larimer – 16
- Denver – 20
- Douglas – 20
- Adams – 11
- Jefferson – 18
- Arapahoe – 15
- Boulder – 6
- El Paso – 7
- Prowers – 4
- Mesa – 6
- Routt – 2
- Teller – 3
- Archuleta – 1
- Custer – 1
- Delta – 3
- Gilpin – 1
- Gunnison – 1
- Huerfano – 1
- La Plata - 1
- Las Animas - 1
- Logan - 1
- Montezuma - 1
- Morgan - 3
- Park – 2
- Weld – 5
- Broomfield – 1
- Eagle – 1
- Elbert – 1
- Fremont – 2
- Garfield – 1
- Grand – 1
- Jackson – 1
- Montrose – 1
- Sedgwick – 1
- Summit – 8
- Washington – 1

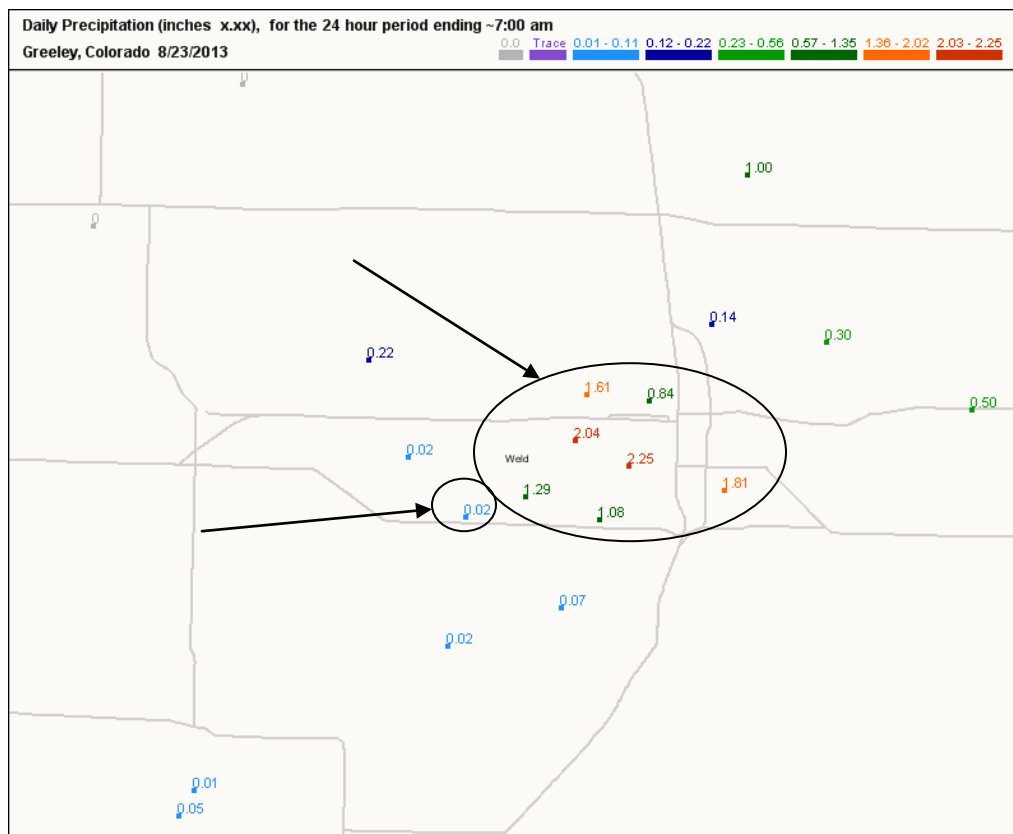
If you're on Facebook or Twitter, don't forget to "Like" and "Follow" both CoCoRaHS & the Colorado Climate Center!





## MAP OF THE MONTH FROM AUGUST 23, 2013 – GREELEY, COLORADO

This map shows just how variable precipitation can be, and why we strive to have at least one active gauge per every square mile in populated areas. The more gauges we have in the field, the better we can map the high variability of rain, hail and snow. This data will help with everything from climate studies to better understanding and managing our surface waters. The smaller circle shows a station with 0.02” of rain while just down the road in the larger circle there were several reports greater than an inch, with a maximum of 2.25” in the center of the circle.



## METEOROLOGICAL SUMMER ENDS

For the purposes of studying climate, summer is considered to be the months of June, July and August. The astronomical summer runs from roughly June 21-September 22. There were 12 CoCoRaHS stations in Colorado that measured more than 10” of rainfall during the 2013 meteorological summer. For some communities, that is more than an entire year worth of rain!

CO-EP-256	Peyton 8.3 SW	14.09
CO-EP-237	Falcon 2.3 NNE	13.58
CO-EP-291	Colorado Springs 8.2 SE	12.65
CO-EP-24	Black Forest 4.5 SSW	12.21
CO-KC-84	Stratton .25 WNW	10.96
CO-TL-16	Cripple Creek 5.1 NW	10.82
CO-EP-68	Colorado Springs 5.8 ENE	10.78
CO-PK-69	Bailey 6.4 NNW	10.58
CO-LA-13	Boncarbo 1.5 WSW	11.52
CO-CC-7	Idaho Springs 4.7 SSE	10.11
CO-PU-76	Rye 1.1 WSW	10.09
CO-EP-192	Colorado Springs 13.9 NNE	10.06

CoCoRaHS stations in Colorado that recorded more than 10 inches of rain for the period June, July and August, which is also known as the meteorological summer.

## HOW TO GET CREATIVE WHEN INSTALLING A RAIN GAUGE

One of our newest CoCoRaHS observers in Weld County decided to get a little creative with installing his rain gauge in the backyard. As you can see in the before and after pictures below, he got a five gallon bucket and anchored the stake inside, then mounted the bracket and placed the set-up into a nice garden planter, which he filled with some beautiful annuals.



**Before: CoCoRaHS Observer CO-WE-387 showing how you can install your rain gauge into a garden planter by using a five gallon bucket!**



**After: A functional rain gauge with a beautiful new item to that can be used to decorate the backyard!**