

Winter 2017-2018 CoCoRaHS:

Hello one and all,

Here is your quarterly Colorado CoCoRaHS newsletter from your friendly state coordinator:

Winter can be cold, and the short days can wear on us all. I've been enjoying watching our sunset get later and later. It has been a less snowy than average winter for most all of you, and warmer than normal for many of you. I'm attaching more info on our state's developing drought below for those who are interested. But we've had enough snow to provide a white background for this nice, zen shot of a pretty bird on top of Mount Werner. Are there any birders out there who could help me identify it? Do you have pretty winter weather photos? We would love to see them!



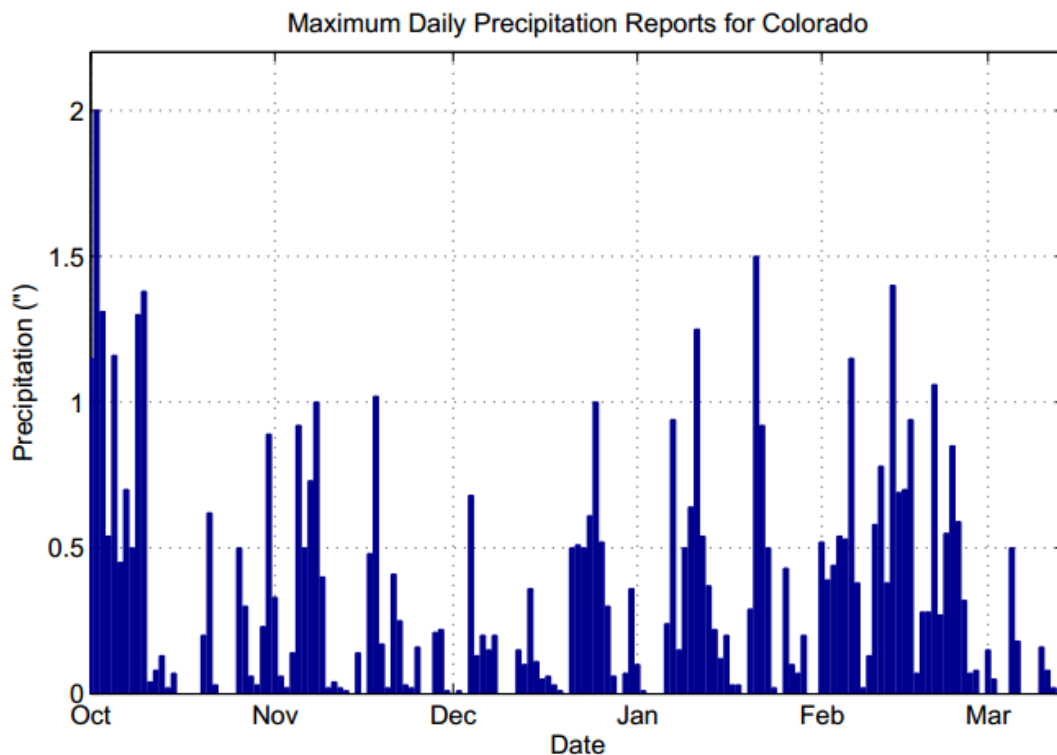
Photo credit: Ken Goble. 3/1/2018

Storms this cold season:

For most of us, the winter season is actually the driest time of year. Sometimes when snow lingers on the ground for days it doesn't feel this way, but a cold atmosphere can't hold as much moisture, so it is easier for us to receive large bursts of moisture in the late spring and summer. For the mountains, precipitation totals are often more even between winter and summer, and in some places does peak in the winter. According to Nolan, every month of the year is the wettest average month somewhere in Colorado. Areas above 9,000 ft are far more likely to have their heaviest precipitation in the winter. Of over 1,000 active observers in the state, there are only 41 active observers in Colorado reporting above 9,000 ft. It takes a hardy character to live that high up! Unfortunately, it's been a drier than normal winter most places, and this shows especially clearly in our high country.

Our wettest station since October 1st is located on the Grand Mesa above 10,000 ft, and has received 16.85" of precipitation. This is likely a below average total for October 1st through the middle of March. All stations reporting over 10" over this time frame are in mountainous locations, and half of our top ten highest precipitation numbers are in Steamboat Springs. There have been only 20 total reports of one foot of snow or greater in a 24 hour period in Colorado this winter. One large spring snow event on the Front Range could change this number dramatically.

For some folks, particularly in eastern Colorado, no substantial moisture has fallen since the first week of October. The cold season is the dry season on out the eastern plains, but some winter precipitation is necessary to keep crops and rangelands happy. Send thoughts and prayers of gentle, sustained, and soaking April rain for those folks.

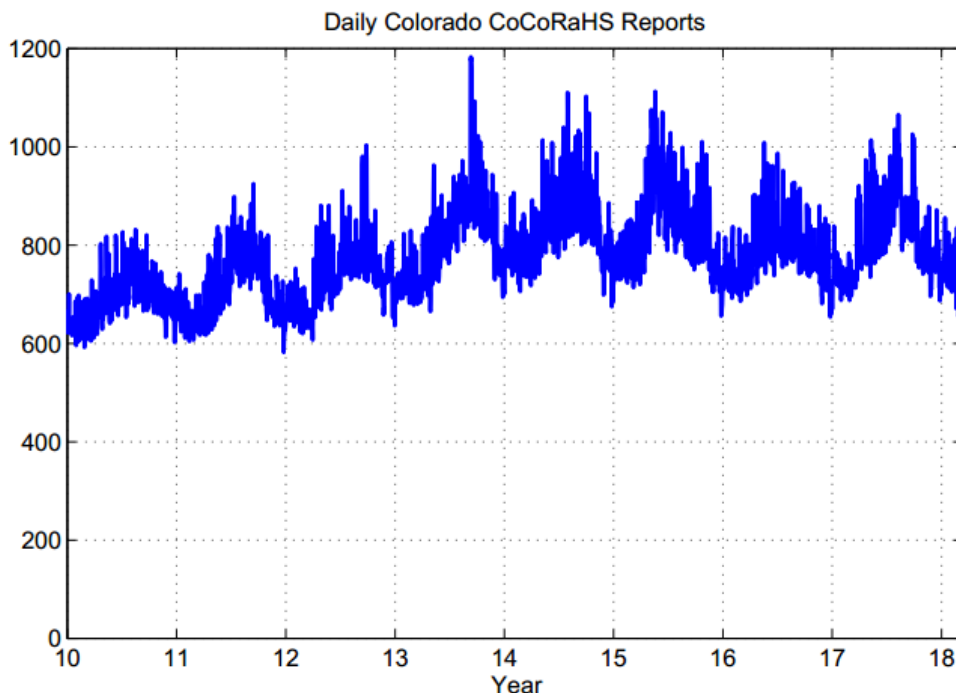


Reporting Stats:

Since the beginning of October we have had 59 people submit their first report, 137 people submit their 100th report, and 27 people submit their 1000th report.

Since January 1st of 2010 there have been over two million CoCoRaHS reports submitted for Colorado. If we assume an average of only five minutes out of your day/report, that's still over 83 years of full time work submitting rainfall to CoCoRaHS. We're eternally grateful. To those who submit their reports day in and day out, to those who submit in rain, snow, or shine, thank you. Thank you, thank you, thank you. You're more valuable than you may ever know. You're important to your local weather forecasting office, you're important to people who monitor our water supply, you're important to NASA, you're important to those who monitor drought development and amelioration. Reporting to CoCoRaHS is a community service, and you should feel good about what you're doing.

Here's an interesting plot of CoCoRaHS participation for the 2010's: It shows us a few things: It brings me joy to see that CoCoRaHS is still growing slightly or going steady in Colorado. I'm not concerned by what appears to be a very recent dramatic drop off. We see this any time we are pulling numbers. Some folks take a few days or weeks to transfer their records to the website. Maybe for some of your this newsletter will serve as a reminder to update your records.



You may notice there's a seasonal cycle to the number of reports we receive. We are pleased with those of you who soldier on through the winter storms. Some folks don't do winter, and that's also okay. Measuring snowfall and ice can be hazardous, and your safety is more important than your data. Meteorologic winter is over, but if you've spent much time in Colorado, you know there could be plenty

more snow on the way in the next couple months. If you're unsure of your footing out there on the ice, then by all means stay inside and preserve your body to measure the next gentle spring rain.

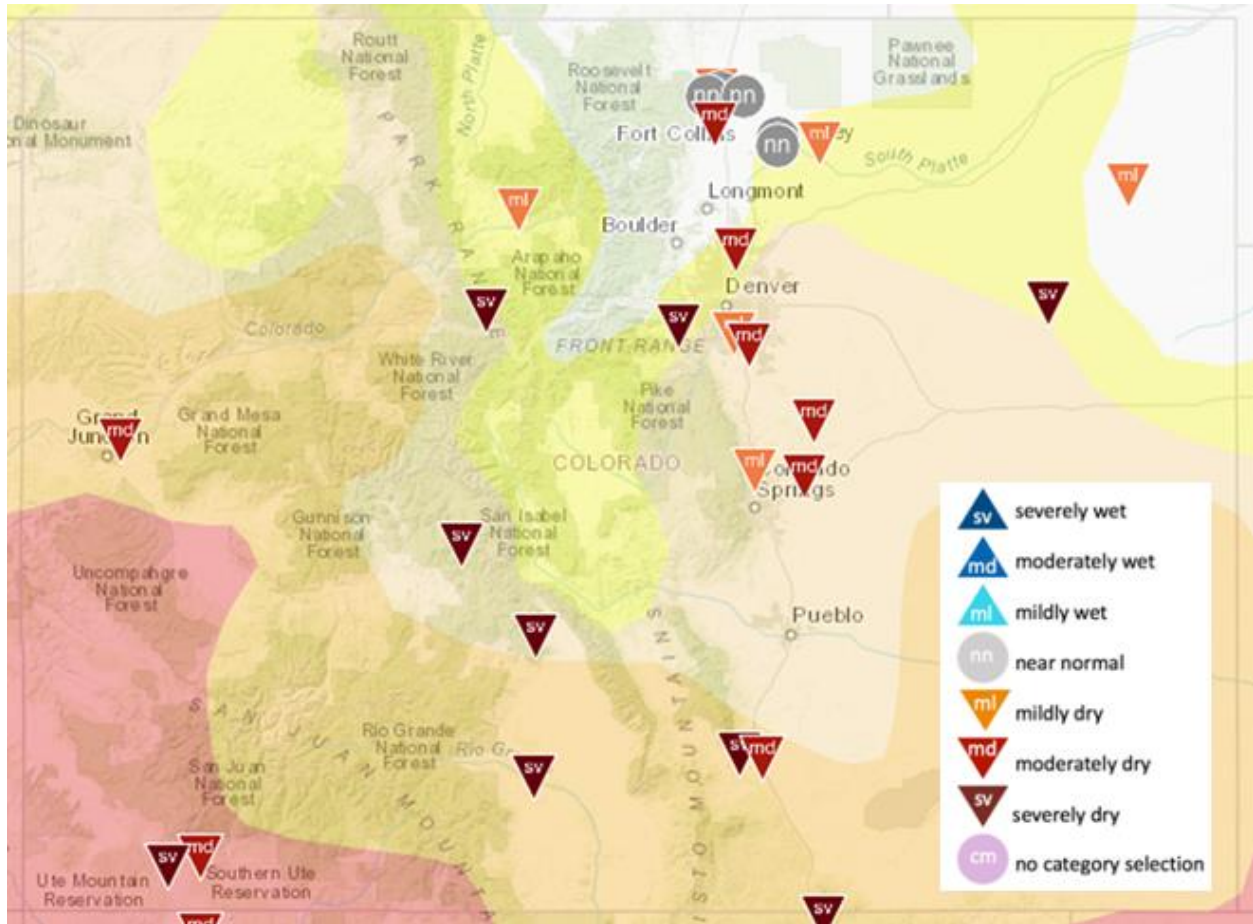
You may also notice the amount of day-to-day noise. This is driven by whether conditions are wet or dry. We do want folks to report their zeros, but we inevitably get more reports when conditions are stormy as the weather serves as a reminder to check the rain gauge. The CoCoRaHS community stepped up huge when we sent out special requests for rainfall totals in the September floods of 2013.

March is the time of year when CoCoRaHS does our annual recruiting drive. I've never had a pushy personality, so egging you on to recruit new volunteers is not my strong suit. If you enjoy CoCoRaHS, and it crosses your mind to do so, have a chat with someone this week about why you enjoy CoCoRaHS. Feel free to give out my email to anyone who is interested. If you, or someone you are working to recruit is not certain what the value of CoCoRaHS is, please don't hesitate to pump me for info. If you live out in the country, we are especially interested in getting your neighbors involved. CoCoRaHS may still be growing in Colorado, but much like our state's population in general, it's migrating from rural to urban areas. We need all the data we can get from rural communities.

The developing drought

Talking about recent storms for our state has a little bit of an underwhelming tone to it for this time of year. Statewide average precipitation for the winter (DJF) was 2.29", almost an inch below average. It doesn't sound like a lot, but that adds up over such a large area. The last winter we had that was this dry or dry was (gulp) 2001-2002, which resulted in water shortages. Those of you who were around in the winters of 1976-1977, and 1980-1981 may remember that those winters were even drier still. I'm attaching some figures here that you can reference to see how this year's drought is unfolding. The last point I want to make about this drought is that you can help us track it. As with any other natural disaster, we need local impact reports to fully understand the scope of drought. How can you help? File a condition monitoring report once/week. These reports are just for you to explain whether the conditions you're experiencing are wetter or drier than usual for this time of year, and why. Condition monitoring is more open to your interpretation than measuring precipitation. We want to hear about all of the impacts you're experiencing from wetter or drier than normal conditions. Is your garden wilting? Report it! Are there fire restrictions? Report it! Are you able to walk or hike outside at a time of year when you're usually huddled inside with hot coco watching the snow fall? Report it! More information can be found here: <https://cocorahs.org/Content.aspx?page=condition>.

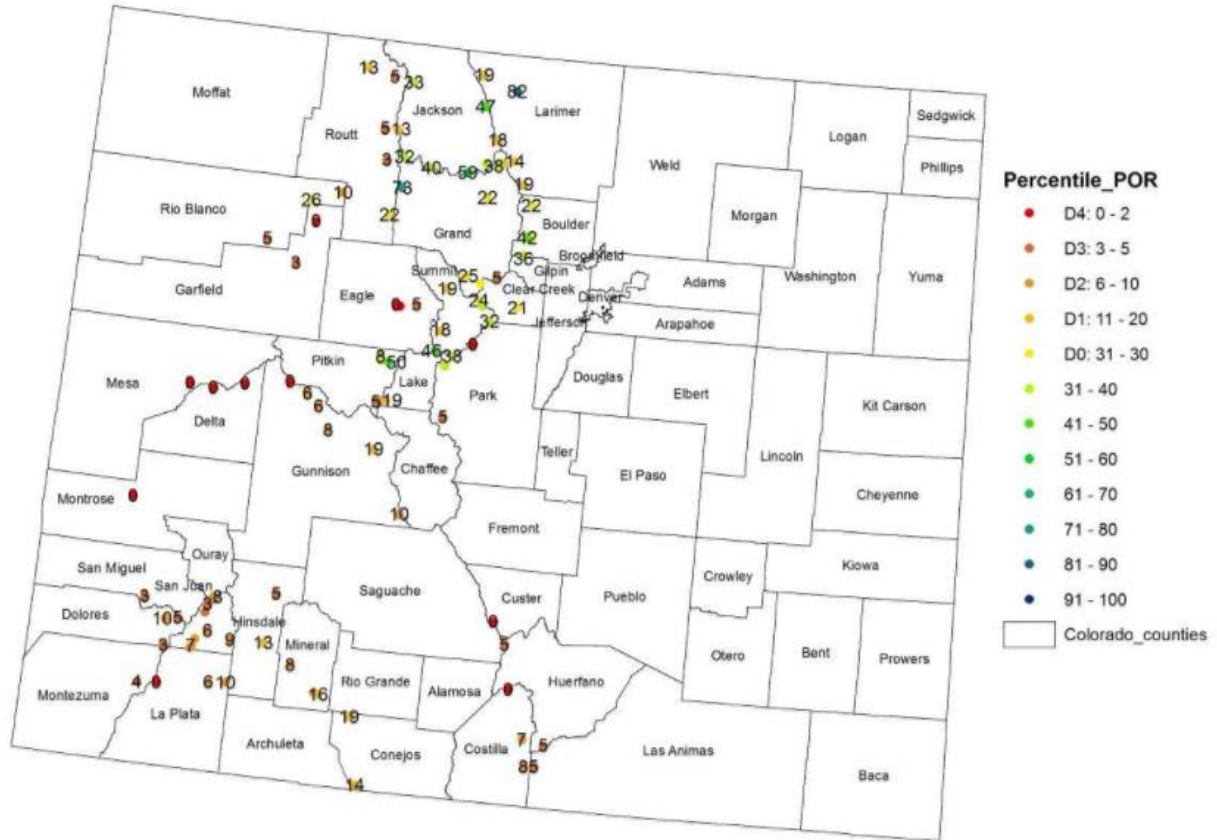
CoCoRaHS Condition Monitoring Map March 8th, 2018



Here is a map of whether conditions are wetter or drier than normal as appraised by CoCoRaHS observers. The US Drought Monitor map provides the background shading. As you can see, CoCoRaHS observers and drought expert may agree on more than you think!

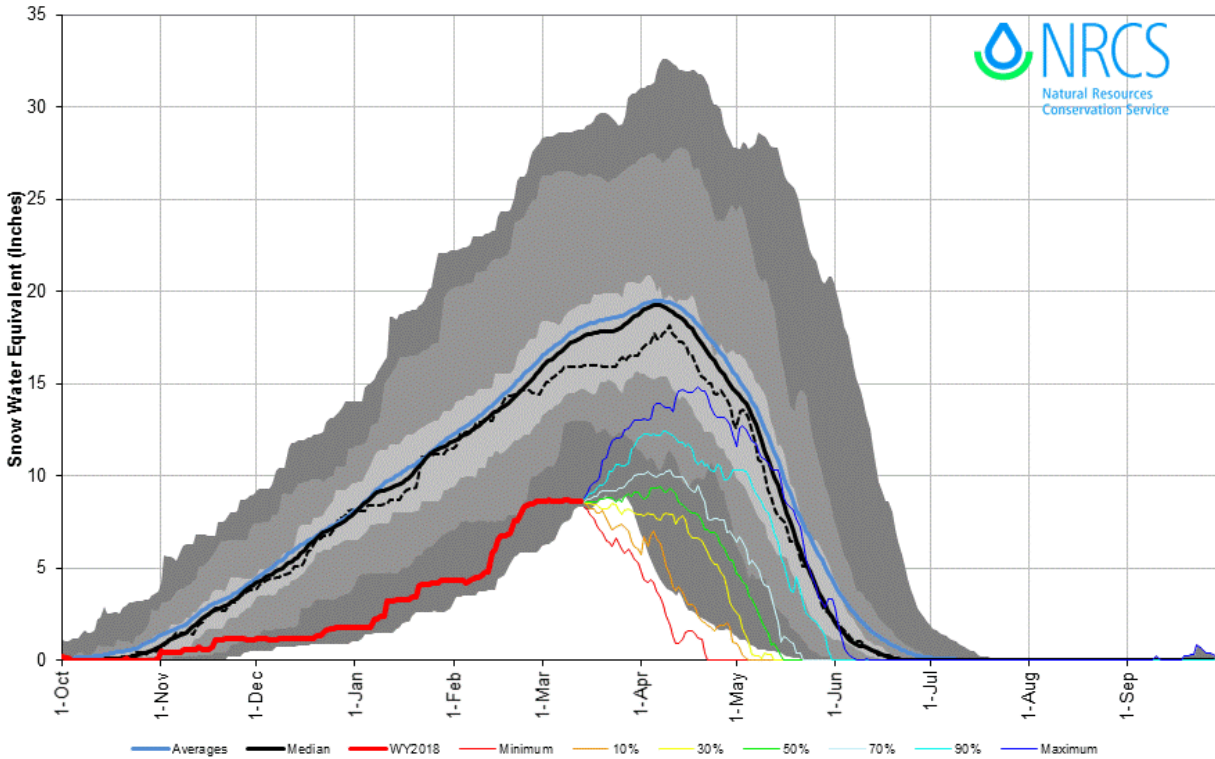
More Drought Info

Snotel Water Year 2018 Snowpack Percentile Ranking for 8 March 2018 (Stations with 15+ years of data only)



The map above shows snowpack percentiles (0-100) for Snowpack Telemetry weather stations in our high elevations. Percentiles of zeros indicate locations where the current snowpack is the lowest on record. In general, our southern mountains are suffering more than our northern mountains.

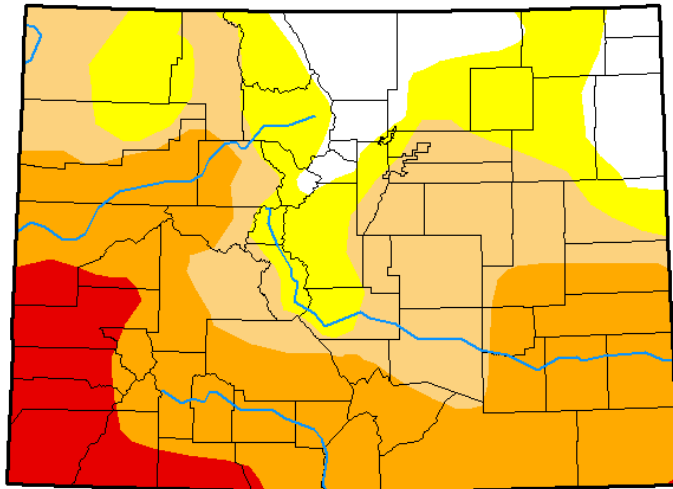
San Miguel, Dolores, Animas and San Juan River Basin with Non-Exceedence Projections
Based on Provisional SNOTEL Data as of Mar 13, 2018



This image shows current snowpack in the San Juan mountain range of southern Colorado (red) compared to historic years (shaded). The solid black line represents an average snowpack year. The colored lines that extend passed the red line are potential snowpack possibilities for the coming several months. Higher than average projections are shown in blue, average in green, and lower than average in red and orange.

U.S. Drought Monitor Colorado

March 6, 2018
(Released Thursday, Mar. 8, 2018)
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	10.16	89.84	70.89	45.80	9.28	0.00
Last Week <i>02-27-2018</i>	10.16	89.84	70.89	33.51	7.62	0.00
3 Months Ago <i>12-05-2017</i>	66.96	33.04	15.99	0.00	0.00	0.00
Start of Calendar Year <i>01-02-2018</i>	6.57	93.43	33.53	7.27	0.00	0.00
Start of Water Year <i>09-26-2017</i>	67.63	32.37	3.72	0.00	0.00	0.00
One Year Ago <i>03-07-2017</i>	48.04	51.96	37.11	1.98	0.20	0.00

Intensity:

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

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

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CPC/NOAA/NWS/NCEP



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

This map shows the current US Drought monitor depiction of conditions in Colorado. The red shaded area indicates that conditions are worse than we would expect in March in at least 95 out of 100 years. Orange shaded areas indicate levels of dryness that we would expect one out of every 10 Marches. Tan shaded area indicates approximately one in five year dryness. Yellow shaded area is simply abnormally dry, and non-shaded area is either normal or wet for this time of year.