Colorado CoCoRaHS Newsletter
Fall 2025

Hello, everyone. For those who may not know me, my name is Peter and I am the Colorado State Coordinator for CoCoRaHS! For the most part, this just means I am available to you if you have any questions about CoCoRaHS (e.g. how to measure snow, where to get supplies). I also try to write three newsletters/year with fun stats about CoCoRaHS and some musings on happenings in weather and climate.

Fall is Here

As I look outside, I notice that not only are the leaves on our trees changing color, the latest rain event brought a visible fresh sheen of snow to our high elevation areas. I like to check in with our CoCoRaHS observers around this time. It won't be long until many of us are measuring our first snowfalls of the season. Furthermore, many of you are about to enter your first snow season with CoCoRaHS. How exciting! Measuring snow is not too difficult, but it does add some nuances to the CoCoRaHS experience. If you're an auditory learner like me, you can get detailed step-by-step instructions for how to set up for and measure snow here. You can also read a PDF. Finally, please feel free to ask questions. You can reach me at peter.goble@colostate.edu.

Colorado CoCoRaHS Summer Statistics

One of our favorite sayings at CoCoRaHS is "precipitation does not fall the same on all." That was as true as ever this summer. It was a very active summer for thunderstorms in parts of eastern Colorado. Our highest CoCoRaHS totals were in Cheyenne and El Paso Counties. CO-CH-28 led our state with 16.34" of accumulated rainfall for June-August. The second and third highest summer totals also came from Cheyenne County. In general, our easternmost counties measured the most rain: Cheyenne, El Paso, Kiowa, Kit Carson, Lincoln, Phillips, and Washington Counties all had stations with over 12" of rainfall from June-August (Figure 1). That is over 4"/month which is high for Colorado!

The highest single daily report came from CO-KC-130 (southwest of Burlington). A deluge of 4.30" hit this station on August 30th, 2025. However, it was a close competition for the highest report this summer. CO-AR-314 (east of Aurora) registered 4.28" on August 27th. If we include September in the discussion, another honorable mention goes to CO-ME-162 in Grand Junction with 2.56". According to the National Weather Service ATLAS-14 product, which helps us understand the rarity of extreme rainfall events, this was a one-in-1000-year rainfall event! For many of us on the Front Range and Urban Corridor, last week's rainfall was a welcome reprieve, bringing many of us up closer to our annual and water year normals. For more details, go to your station's data explorer page. Also note that a link to the data explorer pops up right after you submit your report.

Our Western Slope Counties brought up the rear with precipitation this summer. Our lowest precipitation total for the summer months from a station with a complete observation record came from CO-GF-46 in Glenwood Springs with only 1.17”. My hat goes off to this observer as it takes commitment to keep showing up day in and day out for mostly zeroes. However, it is also very important. CoCoRaHS data are used to help determine where drought is getting worse or better across the country. We like to say “be a hero, report your zero.” We cannot assume there was no precipitation when data are missing.

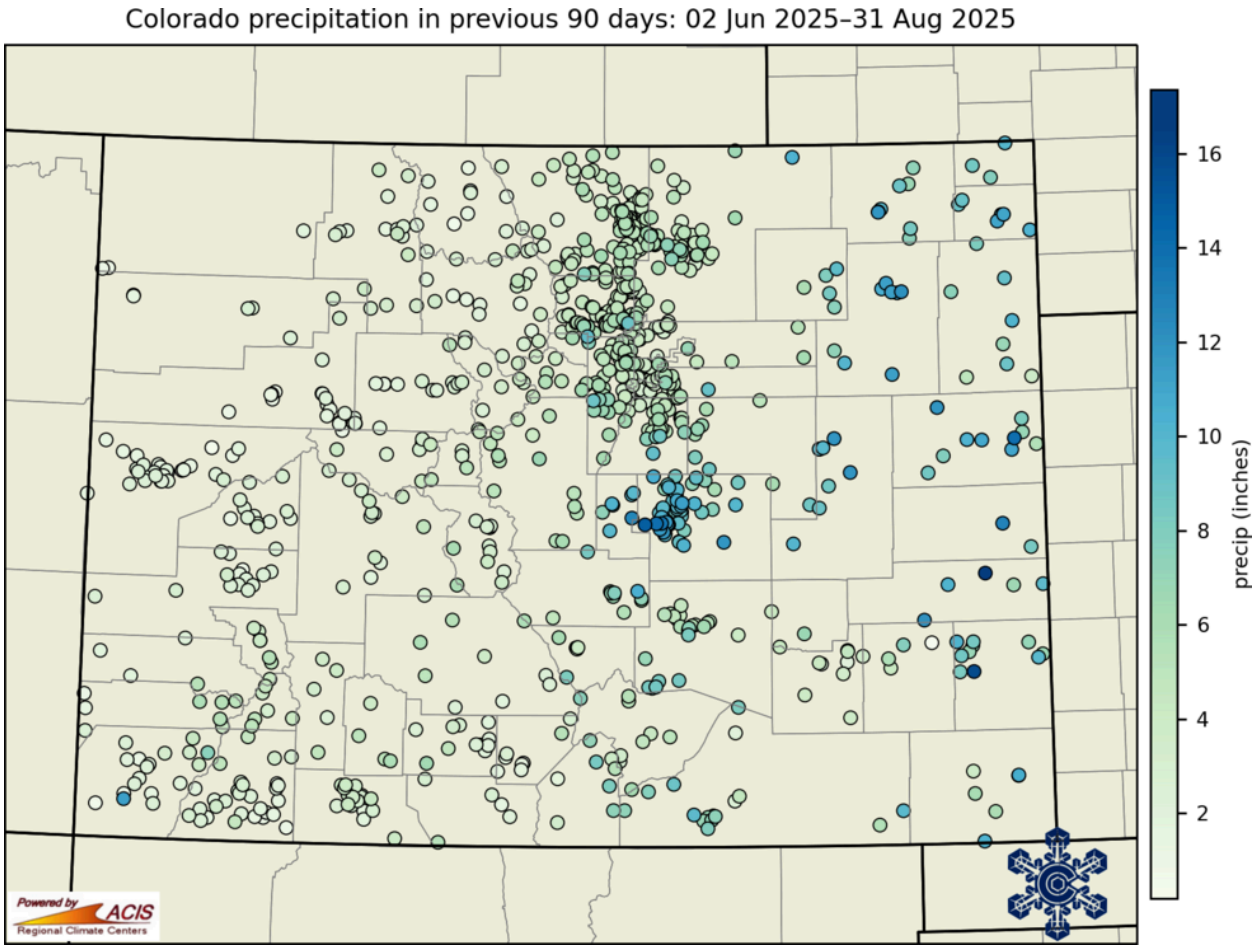

Figure 1: Precipitation totals for June 2nd - August 31st, 2025. Source: ACIS [most of these stations are CoCoRaHS stations].

It is not unusual for eastern Colorado to be wetter than western Colorado during summer. However, the moisture gradient between the east-and-west ends of our state was greater than normal this year. According to the National Weather Service nClimGrid product (which does use CoCoRaHS data), portions of our west slopes saw one of the 10 driest climatological summers on record since 1895. Conversely, parts of Lincoln and Washington Counties in eastern Colorado experienced one of the 10 wettest summers on record (Figure 2).

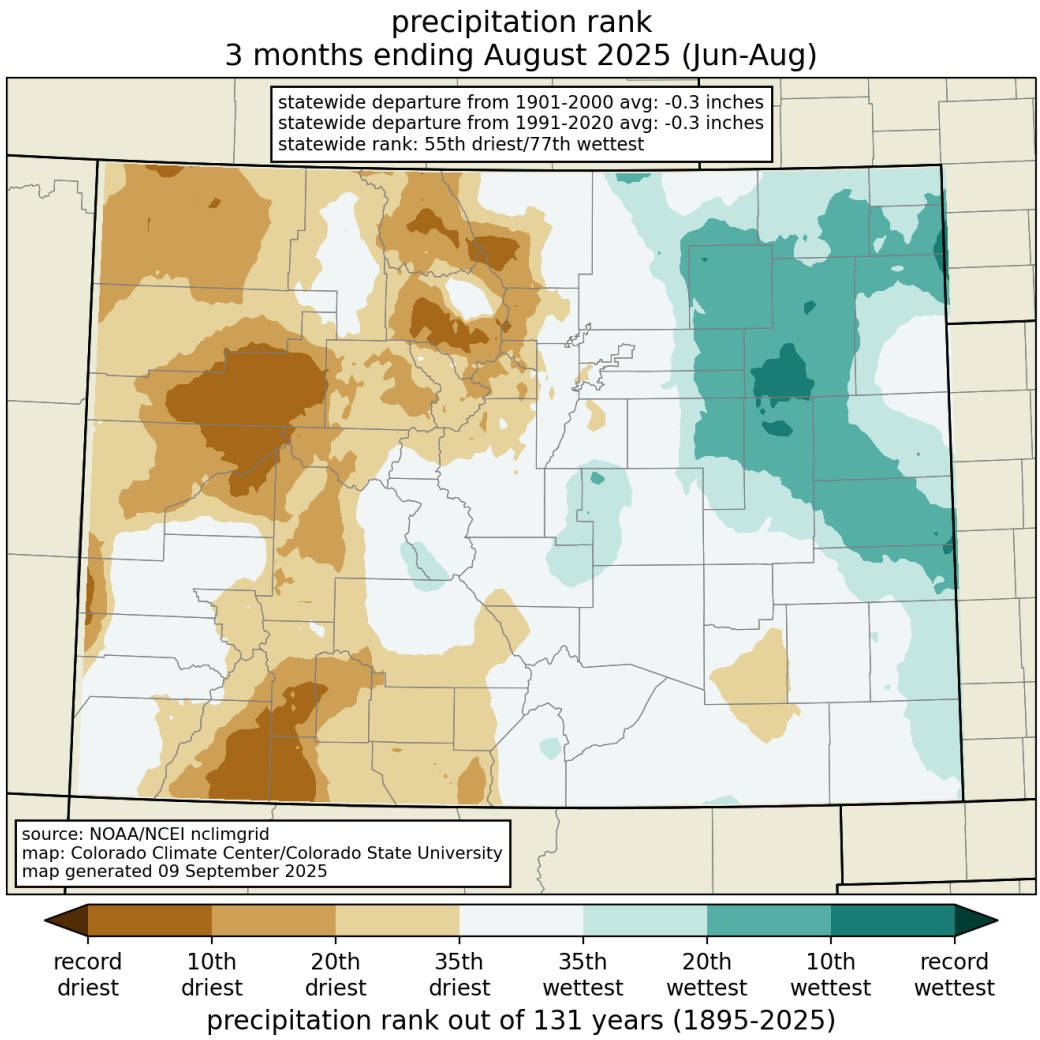

Figure 2: June-August 2025 precipitation accumulation rankings. Source: NOAA nClimGrid [uses CoCoRaHS data].

This Upcoming Winter

We have covered our summer in Colorado, but what is around the corner? A common question for us to receive this time of year is “What kind of winter should we expect this winter?” It’s a really important question. However, skillful subseasonal-to-seasonal weather predictions remain an elusive goal for weather forecasters. Numerical Weather Prediction models are only skillful out to 10-14 days. Sometimes they get precipitation totals very wrong even on the day of an event!

Despite the shortcomings of seasonal weather prediction, we can provide seasonal forecasts that do significantly better than random chance by studying how the behavior of the atmosphere relates to sea surface temperatures, which are slower to change, and other atmospheric teleconnections. Current winter forecasts suggest that this winter will either be a La Niña winter, or an ENSO-neutral winter. The probability of an El Niño winter is quite low (about 5%). La Niña

refers to below normal sea surface temperatures in the eastern equatorial Pacific Ocean. El Niño is the opposite. Our La Niña winters are often preceded by a mild fall, and associated with above-normal snowfall in the northern Rockies, and dry/windy conditions in southeastern Colorado, but there is still a wide range of potential outcomes.

Even though seasonal forecasts do have better skill than random chance, sometimes they are very wrong. The Climate Prediction Center's summer 2025 precipitation forecast is one such example. The forecast for summer 2025 was an increased probability of above normal precipitation for the entire Eastern Seaboard, below normal precipitation for the northwestern and central United States, and equal chances of above and below normal in between (Figure 3). There was also an area in Arizona with an increased probability of above normal precipitation with a forecast for a strong monsoon season.

Oh boy was this forecast wrong! Most of the central US, which was forecasted as more likely to be dry, enjoyed a nice, wet summer (Figure 4). This includes parts of eastern Colorado. Furthermore, much of the eastern Seaboard experienced below normal precipitation with drought emerging over New England. Finally, even the forecast for wetter than normal conditions in Arizona flopped with drier than normal conditions prevailing across the state. To CPC's credit, they had a couple hits: their calls for an increased probability of below normal precipitation in the Pacific Northwest and above normal precipitation in Georgia and the Carolinas both panned out.

Why was this forecast so off? I do not work for the Climate Prediction Center, so I am probably the wrong person to play Monday morning quarterback here. However their forecast discussion shows that some of our usual seasonal weather prediction tools were not as helpful as they sometimes are. ENSO was in a neutral phase, meaning we neither had El Niño or La Niña in place. The Madden-Julian Oscillation was also weak. Soils were dry over the central United States to start the summer season. Sometimes dry soils in summer can help to reinforce dry conditions. Less soil moisture means less evaporation/transpiration through plant root systems and less locally-sourced moisture for rain events, a process known as "moisture recycling." However, one or two good precipitation events that bring moisture from another region (say the Pacific Ocean or Gulf of Mexico) can significantly dampen or wipe out this dry-begets-dry feedback loop. In Arizona, an active monsoon season was forecasted. The southwest United States did receive monsoonal moisture this summer, but much of it missed the typical target area of southern Arizona and instead hit eastern New Mexico or western Texas.

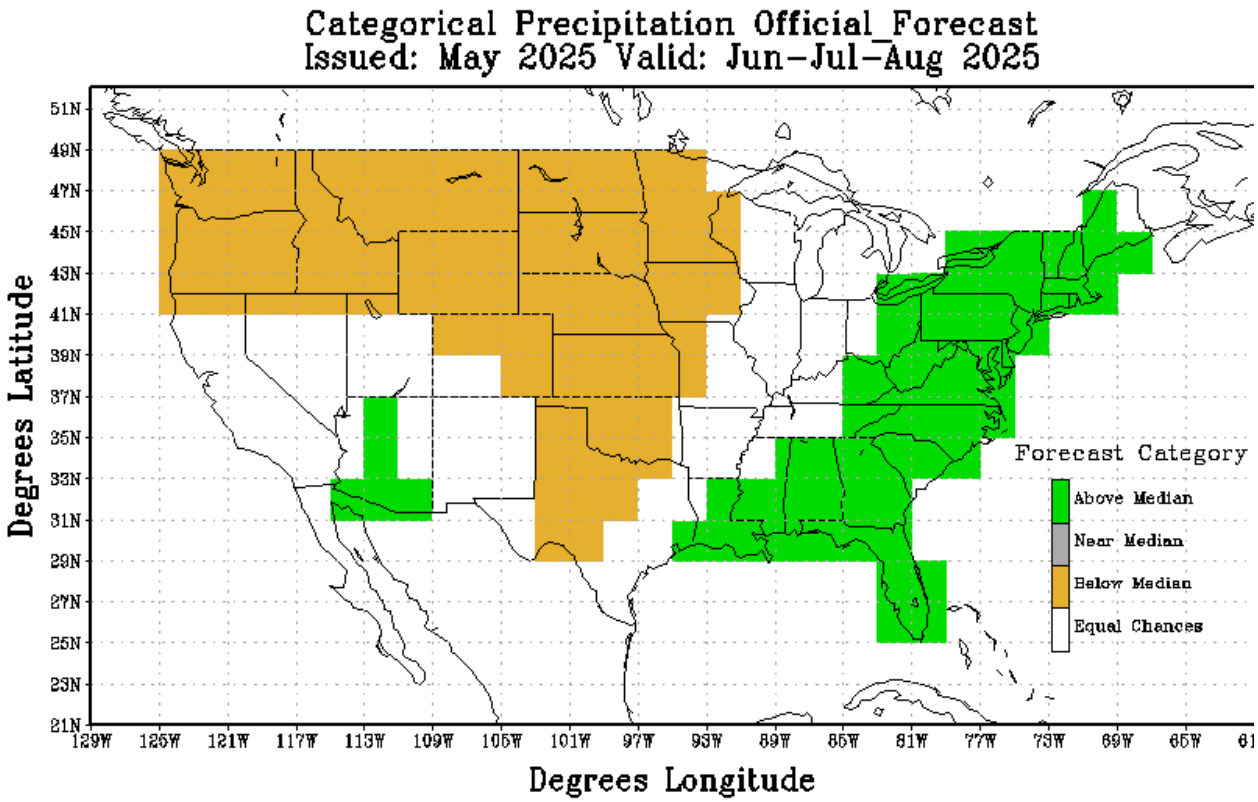

Figure 3: NOAA Climate Prediction Center gridded June-August precipitation forecast for contiguous US. Increase probability of above normal precipitation [green]. Increased probability

of below normal precipitation [brown]. Equal chances of above and below normal [white].

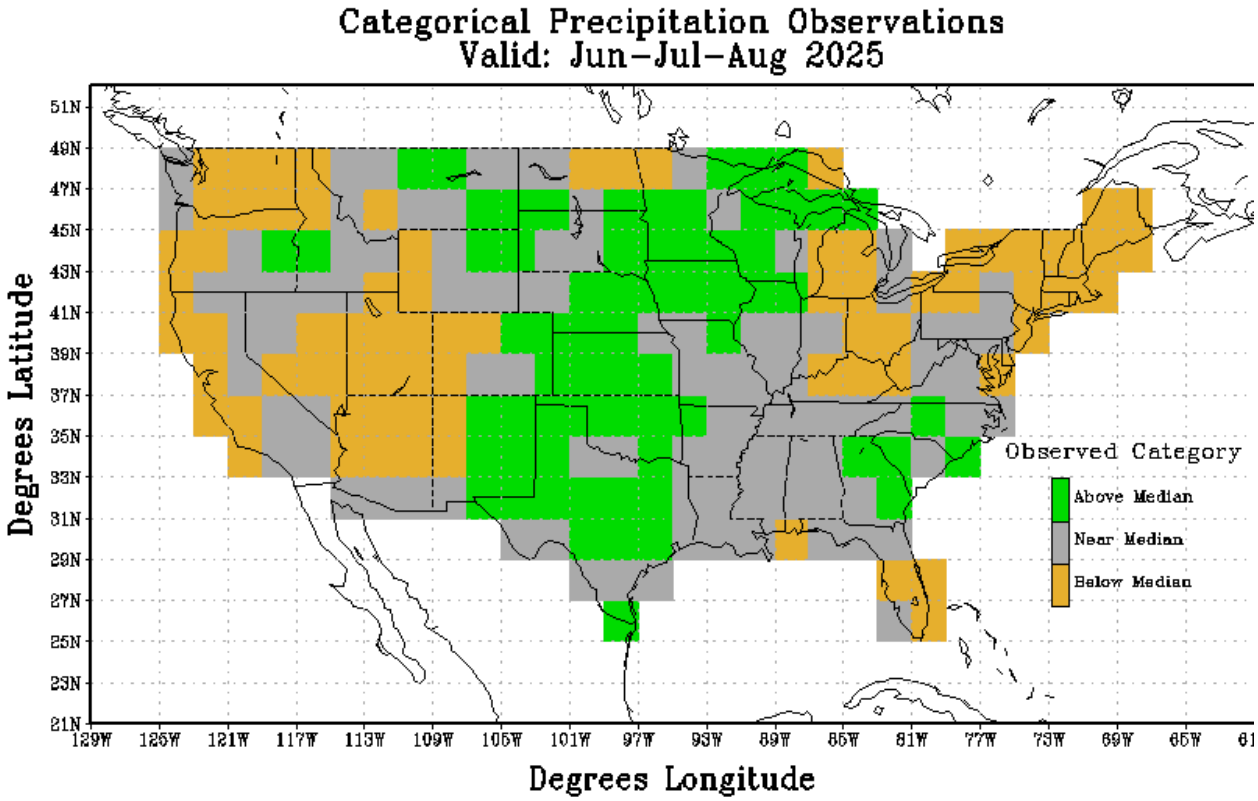

Figure 4: NOAA Climate Prediction Center gridded observed precipitation across contiguous US. > 66th percentile [green]. < 34th percentile [brown]. 34-66th percentile [gray].

A Small Personal Update

If you're still reading, thank you! Nolan's farm stories are always a hit in "The Catch." I am not Nolan, but I'll try adding a bit of a personal update here. It has been so long since my last newsletter. Last fall I was both named the new Assistant State Climatologist for Colorado and became a father. CoCoRaHS and my normal efforts as Colorado's State CoCoRaHS coordinator, have been on the back burner. Almost a year later, I have finally begun to find some balance and normalcy amidst my new roles and responsibilities. I look forward to doing more in the coming year to connect with CoCoRaHS enthusiasts around the state. One of the things I would love to do is reenergize our County Coordinator base. Some of our County Coordinators are outstanding, but many of our counties do not have a county coordinator. Local, grassroots efforts are one of the pillars of CoCoRaHS' success. If any of you are interested in being a volunteer county coordinator please let me know. You can see if your county has a coordinator here. You can find more information about county coordinators here. In general, being a county coordinator is what you make it. You can be highly engaged, hosting community events and

writing regular communication pieces of your own, or you can just be available to welcome new observers in your county and help with their CoCoRaHS-related questions. Thanks again, and happy Fall, everyone!