CoCoRaHS Spring 2022 Newsletter

Peter Goble – Colorado CoCoRaHS Coordinator

March 18th, 2022

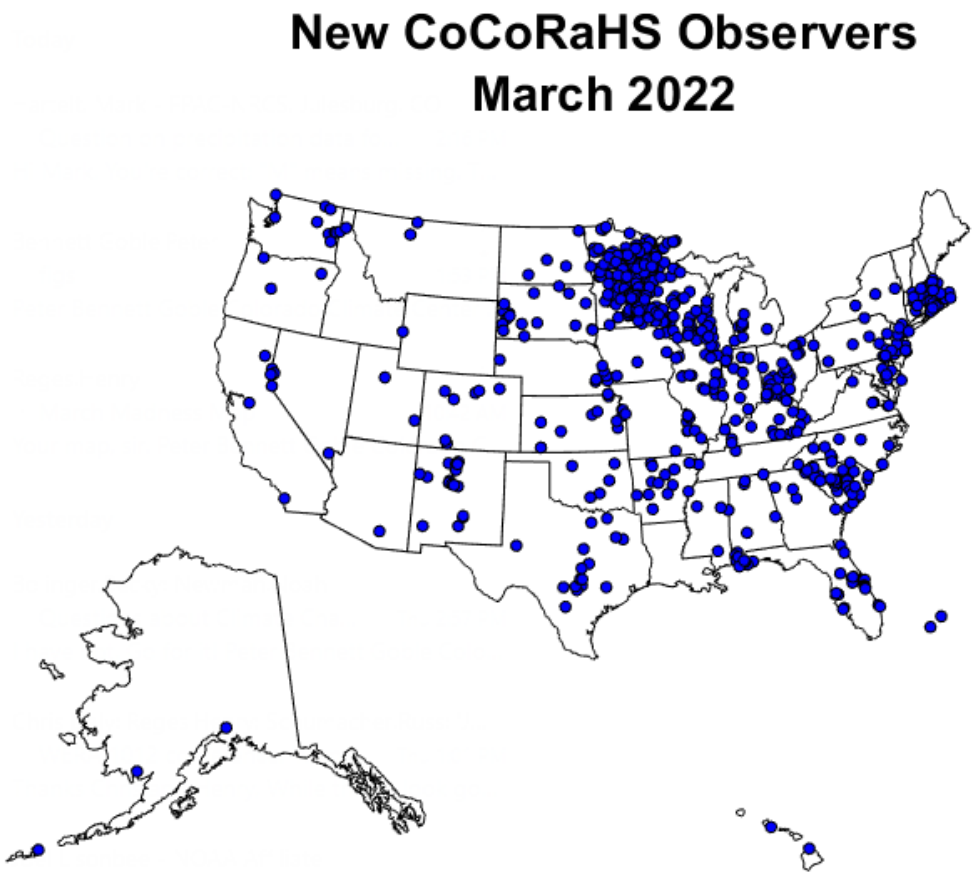
Hello everyone, and thanks again for participating in CoCoRaHS. For those who may not know me, I'm Peter, your state coordinator. What does that mean? It means if you have CoCoRaHS-related questions please feel free to seek me out. If you have any questions about how to report, how to sign up a friend, data quality issues/concerns, or are wondering what else you can do to help, let's get in touch.

This letter opens with some important housekeeping, but don't give up on it. There is a lot of fun content in the second half!

County Coordinators: CoCoRaHS may be an international precipitation observing network, but it would not be a success without grassroots support from motivated volunteers and coordinators. One of the reasons CoCoRaHS has worked in Colorado is because we have had wonderful county coordinators who promote CoCoRaHS in their communities. The duties of a volunteer coordinator are up to them: it can be anything from conducting snow measurement training sessions to partnering with related programs in your area like Master Gardener to just talking about CoCoRaHS.

Several counties in our state currently have coordinator vacancies, which can be viewed here: https://www.cocorahs.org/Content.aspx?page=coord_CO. Please check it out if you're interested in serving as a coordinator in your county. Some of our counties have co-coordinators. You can still help if your county has a coordinator listed.

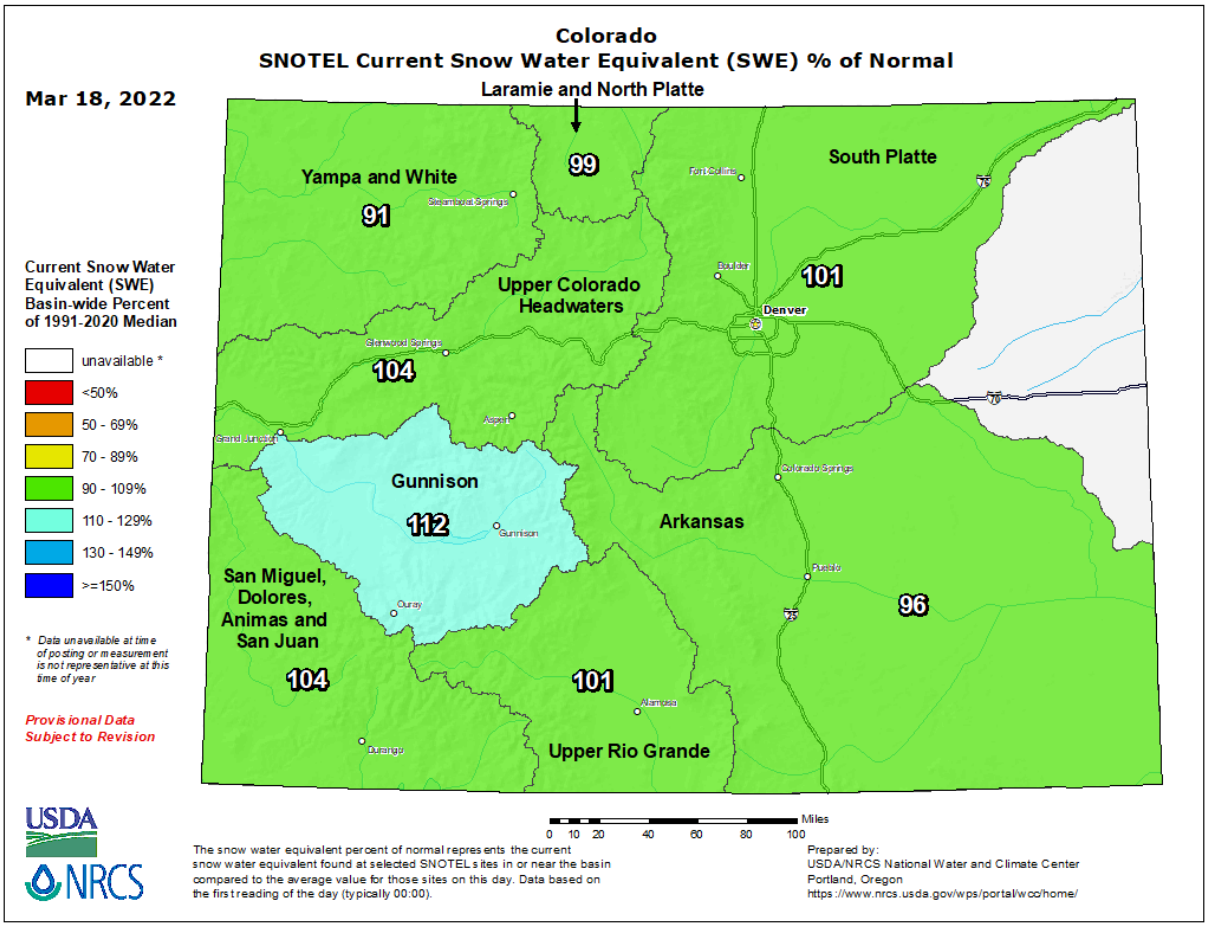
March Madness: I'm not talking about basketball (though I picked Kentucky to win it all this year, and they were eliminated in the first round). CoCoRaHS has an annual recruiting drive every March. It is a friendly competition between states to sign up the most volunteers. Despite Colorado being the birthplace of CoCoRaHS, we have never won. I set my sights on the goal of being top 10, and we often achieve this goal. This year, as you can see from the map below, we are struggling. We will not beat Minnesota, Wisconsin, South Carolina, or Massachusetts, but with a little help from your friends, we can climb the leaderboards. Please mention this cool hobby next time you're talking with friends around the water cooler. Your gauge catch is cooler than your Wordle score, even if you "got it in two" =)



New CoCoRaHS volunteers March 1st – March 17th, 2022.

What's New in Colorado Weather?

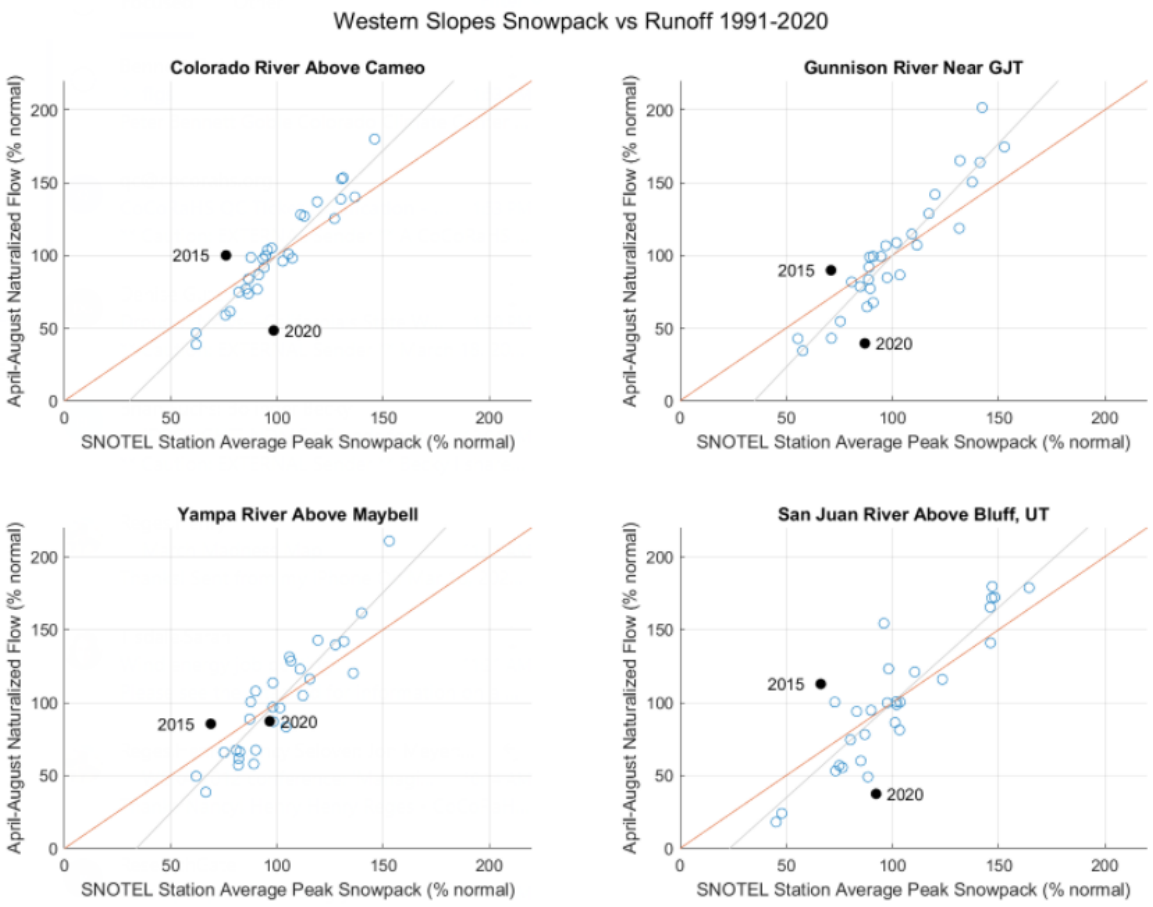
Happy spring equinox! I love this time of year for several reasons, one of them being that the days are rapidly getting longer. The other being early spring is peak snowpack season in Colorado. Snow falls on our high mountains all winter long, and reaches peak values in April. The introductory picture of this newsletter is me sampling such finery on top of Peak 6 at Breckenridge.



Percent of median snowpack for major Colorado River Basins as of March 18th, 2022.

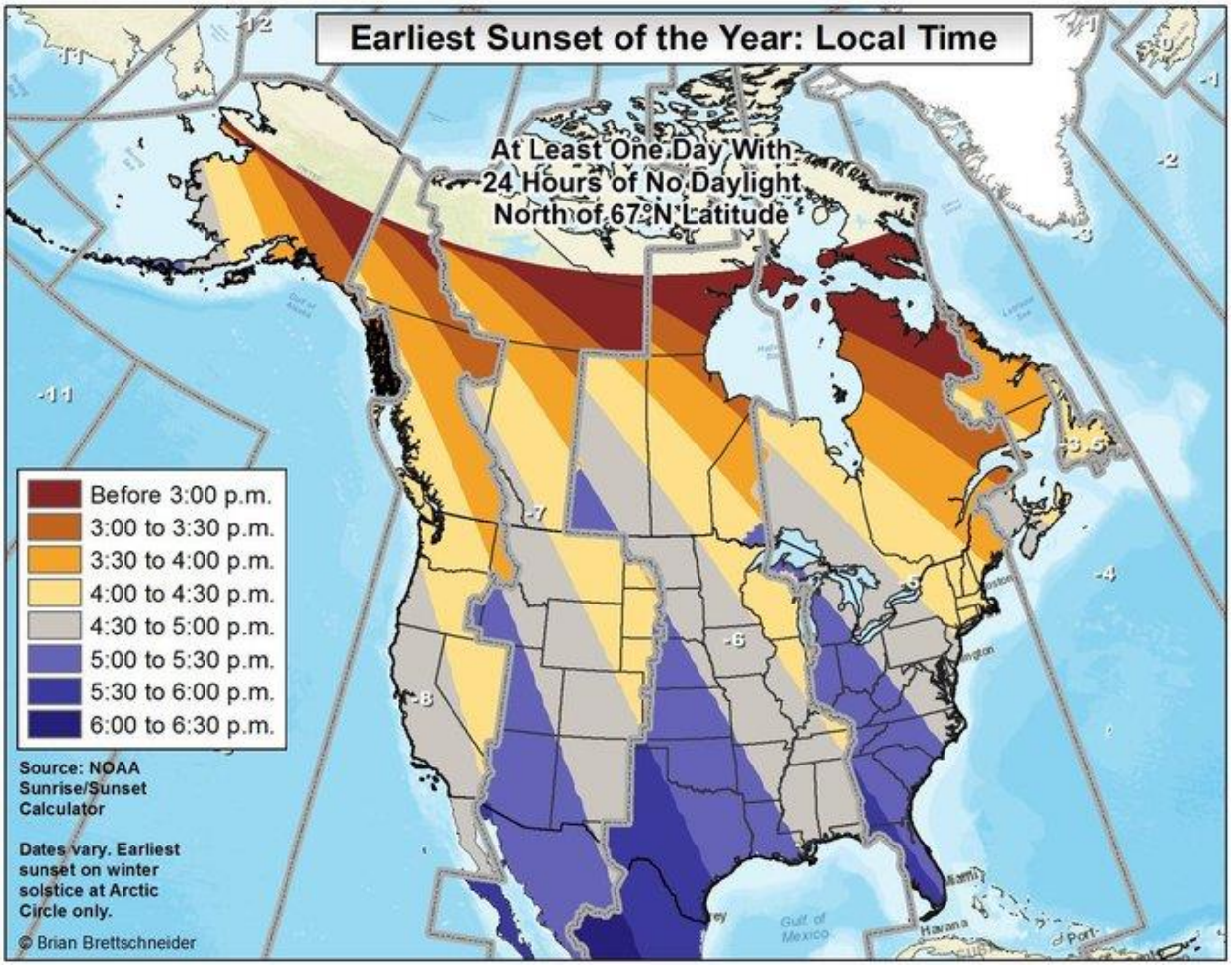
As the sun continues to climb higher in the sky, this snow will eventually feed our lakes, streams, and reservoirs for another year. We are quite fortunate in Colorado to be able to predict, with a decent degree of certainty, how much water we will have for the coming growing season. People who live in rain-only watersheds are not so fortunate.

In general, the better our snowpack, the healthier our water supply. One thing that confuses some people is the relationship between runoff and snowpack is not 1:1. For example, 90% of normal snowpack does not mean 90% of normal runoff; it probably means closer to 80% of normal runoff. Some watersheds are more sensitive than others. The figure below shows a simple linear regression of snowpack vs runoff for our major western Colorado River Basins: The Colorado Headwaters, Gunnison, Yampa, and San Juan Basins. Each blue dot shows one year's peak snowpack and corresponding April-August runoff. The gray lines are the least squares line for each basin. The red line shows what a 1:1 relationship would look like.



We can see from these plots that peak snowpack explains quite a bit of the variation in spring and summer runoff, but it is not everything. Conditions before and after snowpack season can set things askew. For instance, if we have low soil moisture at high elevations before the season starts, more of the season's bounty will go into recharging the soils, and less into the lakes, streams, and reservoirs. Arguably more importantly, precipitation continues to influence runoff even once snowpack values decline. Remember 2015? It was a low snowpack year, but we observed a good runoff year thanks to a "Miracle May." The last two years have gone the other way. 2020 and 2021 were anomalously dry after peak snowpack, leading to a less efficient runoff season. Both 2015 and 2020 have been marked on the graphics above to illustrate how an unusual spring can throw off our expectations. Our snowpack is near normal, but I would bet well short of 100% of normal runoff due to hot/dry conditions entering the snowpack season, and enhanced probability of a dry spring as La Niña is reluctant to let go.

Daylight Savings Time: Did you hear the US (United States) Senate voted unanimously in favor of permanent daylight savings time? I guess wanting to leave our clocks alone has not become a partisan issue. If this motion carries, we would not fall back the first weekend of next November this year. I see the appeal. Watching the sun retreat behind the foothills at 4:30 in December is no fun. If we adopt permanent daylight savings time, the earliest sunsets in the plot below all move back one hour:



Earliest sunset by location. Source: Brian Brettschneider. Twitter.

That said, I disagree with all 100 members of the US Senate: we should not adopt permanent daylight savings time. Here are my philosophical, technical, and practical arguments why:

The philosophical argument is a bit cheeky: why would we permanently set our clocks immediately after destroying an hour? Time is a scarce and precious resource. We have always given up an hour this time each year with the promise of speaking it back into existence. This time, we would be banishing an hour into the void indefinitely. This seems wasteful and reckless to me. One might argue “Peter, time is a human construct. Sure, things grow and decay, and measuring this has many practical applications, but the ‘hour’ is entirely made up. Call it four. Call it five. Who cares?” Touché, my friend, but consider my technical argument.

The whole point of a clock is to measure the passage of a day: one rotation of the earth about its axis. The first clocks were sundials. We could set our engagements based on the position of the shadow. These sundials were designed to point due north (or south in the southern hemisphere) at noon. Noon is midday. If we adopt permanent daylight savings time, this will forever be untrue. You will have to teach your children and grandchildren that 1:00 PM (*post*-meridian) is midday. We will have brazenly placed ourselves permanently one hour askew from our ancestors, and forsaken the very meaning of “AM” and

“PM.” You may remain unconvinced. After all, “who cares about tradition when we can do things better now?” There is practical reason not to abandon standard time as well.

Having later sunsets in the winter will be psychologically satisfying, but it will not be as important as preserving the timing of the sunrise. As a Colorado resident, odds are extremely high that your current latest sunrise is between 7:10 AM (Holly, CO), and 7:40 AM (Dinosaur National Monument, CO). These would become 8:10 and 8:40 respectively under permanent daylight savings time. American schools typically start between 7:30 and 8:30. Do you want your kid learning algebra for the first time in the dark? Do you want to drive your kid to school in the dark when it snows? Of course not! And yes, you could start school and work later in the winter, but then you have defeated the purpose of annihilating standard time.

There is no cheat code to longer days in winter. As long as Earth remains tilted 23.5 degrees on its axis we will have to adjust to the season. We do see a rise in accidents and medical issues when springing forward, which is why I would preserve standard time year-round. This would keep our clocks consistent and meaningful. If some folks want to get up earlier in the summer and use the extra daylight for their own purposes, let them do so freely.

Thank You: Well, that’s all for now, but as always, we are so grateful for everything you all do. We are so happy CoCoRaHS is a part of your morning routine, and can’t wait to discover what the wind will blow our way next.

Kindest Regards,

Peter