

The Catch



NOLAN DOESKEN'S MONTHLY COCORAHS E-MAIL MESSAGE

CoCoRaHS -- Spring Into Action!

Fort Collins, Colorado -- March 25, 2021

Greetings



Springtime greetings to all of you, and a big welcome to over 1,300 new volunteers who have signed up just in the past month to participate in CoCoRaHS (the Community Collaborative Rain, Hail and Snow network). We are eager to see your daily rainfall reports

showing up as dots on our maps. Individually, your measurements will tell a story of your local weather patterns, storms and dry spells. But collectively we provide a grand view of precipitation over much of North America. Get started as soon as you can, and welcome aboard!

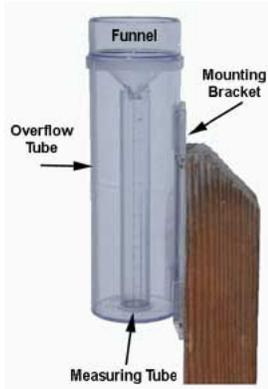
Since we started CoCoRaHS back in 1998 rural population has continued to decline in many parts of the country. That presents us with a bit of a challenge going forward. Fortunately, there has been some great rural recruiting going on this month in parts of Wisconsin, Iowa, Illinois and Minnesota but also in Arkansas, Georgia, Ohio, North Dakota, Virginia, Oklahoma, Kansas and Indiana. But alas, there remains a gap near my hometown in NE Champaign County, IL. If you have friends or family in any low population areas (including Alaska) PLEASE encourage them to join our CoCoRaHS rain gauge team.

There are only a few days left in this year's March recruiting competition ([results updated daily here](#)), but we welcome new participants every day of the year.

If you have any questions or need any help getting started, we've got resources galore:

- [Find your State Coordinator](#)
- [Tips for installing your gauge \(without having to dig a hole\)](#)
- Email our Help Desk: info@cocorahs.org

It's Time to Spring Into Action



If you opted to take the winter off, this is a good time to dust off your gauge, find the funnel and innertube and get started again. Yes, there may be a late snowstorm yet here and there and maybe a few morning ice patches to avoid -- but for most of us it should be clear sailing now. So get up and start measuring! :)

18%!!!

Yes, 18% is the percentage of daily precipitation reports submitted last month that had comments added to accompany your daily precipitation amount. That is up substantially from previous months and may relate to the crazy cold and snowy weather many of us experienced in February. Or maybe more of you are doing what I do - using the comments as an archive for my daily weather journal. Regardless of the reason, this is Great!! A few words to accompany a digital report can really bring it alive. Keep up the good work.

I just glanced quickly at this morning's reports. Here are two excerpts:

- This from rain-drenched Louisiana yesterday morning: *"More rain last 24 hrs than in any of the previous three hurricanes we've been through at this home location. Lots of cloud to cloud lighting with a few ground strokes. Expecting more rain!. Showers and -TSRA most of the night into this morning. Event started out with heavy rain for an hour, with 1.67 inches of rain in that first hour."*
- And this from an observer in New Hampshire on the same day: *"Hornets are back out, being annoying, as usual."*

Your comments are seen, useful, and appreciated!

Significant Weather Reports (SWR) -- "When in Doubt, Send it Out"



As we move into spring, thunderstorms begin rumbling over more and more of the country. Intense downpours become more common and flash flooding replaces winter storms as one of the bigger weather threats we face. In collaboration with the National Weather Service in the U.S. and Environment Canada, we developed a

way for our volunteers to provide timely reports that may feed directly to local weather forecasters. The CoCoRaHS Significant Weather Report (SWR) allows observers to report precipitation and other weather phenomenon that occur between the standard observation times. **Significant Weather Reports are supplementary reports and DO NOT replace your Daily Report nor should be submitted in lieu of a Daily Report.**

The original intent (and still the large focus of this report) is to report significant accumulations of precipitation that occur during shorter intervals during the day. **We often are asked “How much rain, snow or icing constitutes significant weather?”** For sure, an inch of rain (25 mm) in 30 minutes or less or two inches (50 mm) in the past 6 hours or an inch (2.5 cm) or more of snow in an hour constitute significant precipitation for most areas. But definitions vary greatly with geography. A much smaller shower can cause terrible flooding on urban landscapes, desert areas or over land recently burned by wildfire. Or during the winter, this report could be used to report accumulations of snow at regular intervals during a storm, for example every three hours, or even every hour in particularly heavy snowfall situations. Flooding associated with this precipitation should also be reported using the SWR. High winds or wind damage as well as other phenomena (dense fog, freezing rain, etc.) can also be reported using the SWR, but the information needs to be included in the comments as there is no field for these.

These reports are intended to record “short term” events from minutes to hours, but not more than 24 hours. The Significant Weather Reports are automatically routed to the local National Weather Service office to aid in monitoring of weather conditions for possible alerts and warnings and documentation of storm events. As such, their greatest utility is in the short term. Again, we still want your 24-hour total submitted in your daily report as normal, but it is not necessary to repeat your 24-hour daily report as a SWR. In our recent snowstorm, I submitted three SWRs. There is no limit on how many SWRs can be submitted - provided, of course, that weather conditions so warrant.

What Should NOT Be Reported with the Significant Weather Report?

Since the intention of the Significant Weather Report is to report “short term” weather (i.e. less than 24 hours), **the following should NOT be reported using the SWR:**

- Your regular daily precipitation amount. Even though that amount may be high and what you deem “significant”, there is no need to double report it. Any notes of “significance” about the precipitation accumulation should be included in the observation notes
- Accumulations of precipitation over several days. Even though you may have received, for example, 6.25 inches of rain over two days and it is in almost every case significant, this data is contained in the daily precipitation reports. It does not meet the “short term” criteria. Comments about the total can be included with the daily observation(s).
- Hail. Hail should be reported using the [CoCoRaHS Hail Report](#) (more info on hail is below).

Take a look at some [example significant weather reports](#). We also added a feature to our mapping system where you can track SWRs. [Here is a link to view all SWR's submitted this month](#). Keep in mind your local report may help meteorologist issue more timely and precise severe weather warnings, which, in some cases, may even save lives. So please give it a try this year!!

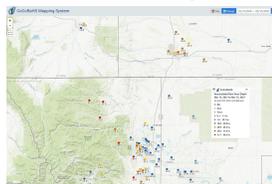
Hail Season is Upon Us

If you live in California or the Pacific Northwest, hail season is winter and early spring. But for most of us, the hail season kicks into high gear in the coming weeks/months. In fact, some of you woke up to hail early [this morning around Austin, Texas](#). You may not realize it, but now, and in the past, there has been surprisingly little data collected about hail at most weather stations. Hail reports from weather spotters typically only include information about the largest stones.

CoCoRaHS has been filling a niche in the hail data collection and research arena. Here in Colorado, [we utilize "hail pads"](#) – foil-wrapped squares of Styrofoam to provide a detailed picture of hail storms in action – stone size distribution, number, hardness and even angle of fall – all very important for assessing the impact and damage caused by hail. But **you don't need to have a hail pad to be able to help us learn more about hail storms**. The prime hail belt in North America is just immediately east of the Rocky Mountains from north of Edmonton, Alberta to eastern New Mexico and out onto the Great Plains and Canadian prairie. But hail can fall anywhere. Just watch, take notes as the storm passes over, and then promptly [submit a real-time "Hail Report"](#). (Save this link as a bookmark, or you can find it in the left-hand menu of your data entry page.) These, too, will be nearly instantly transmitted to your local NWS forecast office to support their severe weather prediction and warning services.

Hail week will be coming up in April. We encourage you to follow along with each "Message of the Day" from April 11-17th as we prepare for another hail season.

A Quick Recap of a Remarkable Snowstorm



Again, last month I said that would be the last time I talked about snow for this winter. And again, I lied. Even as winter was winding down for much of the country, here on the Front Range of the Rockies we were blasted with an onslaught of heavy, wet snow and high winds on March 13-15th. Trees broke under the weight of snow, and snowplows labored to push 15-25" of snow with water contents of 2.00" - 3.50" (50 – 87mm). My

normally excellent rain gauge location was very much compromised, as the trees north of my gauge intercepted much of the snow - causing my gauge catch to be quite lower than subsequent core samples taken from open areas. Meanwhile, my secondary gauge location was inaccessible and the gauge was totally buried and took 3 days before I could find it even though I had a 26" marker nearby.



When I first looked outside on Sunday AM (March 14) and saw large branches on the ground under our 60-foot (18m) tall American Elm trees, I thought our car had likely been crushed. Indeed, several modest 3" to 6" (7-15 cm) diameter branches were lying on or very near our car, which on closer examination, had fallen from the very top portion of the tree. That afternoon as the storm wound down, we ventured out to take a closer look. We found nary a scratch. By luck, the limbs had first bounced off the overhead power line that slowed their fall. The thickest branches just missed the car by inches, and the many smaller limbs that landed on the roof of the car were cushioned by the mass of 18" of dense slop.

More Snow Measurement Q&A

Here are a couple of snow-related questions I received after the storm that may be worth passing along.

Q. I'd like to bring up an age-old snow reporting question after the big weekend Front Range storm. I'm retired NWS and have been formally measuring snow at my home. Looking at the CoCoRaHS 2-day New Snowdepth map, I'm seeing a number of wide variations of 5-10" from stations very close to each other. For total storm accumulation I reported 19.0" and that was the maximum depth (average) that I observed during the event. This is how I've always kept my snow records. I had 9" new snow for my CoCoRaHS report Sunday and 10" for today's report to equal the 19" total depth. However, an observer I know a little more than a mile from my home tells me he had 24.9" of snowfall, but only 18" max depth.

The Denver airport (DIA) officially reported 27.1" snow for the storm. I question whether that was a max depth of snow at DIA or several snowfall clearings of a board during the event. Your thoughts on this?

A. Daily snowfall is defined as the maximum accumulation of new snow that fell during the observational day (24-hour period) prior to melting, settling or redistribution (i.e. drifting). Observers are instructed to clear their snowboard or

other snow measurement surface at that time, reposition it on the surface of the existing snow, and start afresh for the next day. For example, I measured a max accumulation for the 24 hours ending at 7 AM on Sunday of 17.5" but by the time I completed the observation, it was 17" on the ground. Its water content from a core taken in the snow this AM was 2.32". I then emptied my gauge and redeployed it and repositioned my snowboard on top of the 17" of existing snow. It snowed intermittently much of the day yesterday but the maximum accumulation on my snow board measured 1.6". The water content of the snow that collected in my gauge was 0.14". The total depth of snow on the ground this morning remained unchanged at 17"

When I add up my two-day snowfall total I reported 19.1" but my maximum depth on the ground during this 2-day period was only 17.5".

So yes, it is possible and appropriate for a multiday snow event for the reported snowfall to exceed the maximum observed depth.

This was greatly exaggerated for a number of years at some observing stations (mostly in NY and adjacent states) where, for a time pre-ASOS, observers at airport weather stations were measuring every hour, clearing their measurement surface, and then adding up 24 hourly increments to arrive at their daily total. There were situations then, especially in low density lake effect snow events near the Great Lakes, where the sum of the hourly observations could be double the maximum observed depth. At a special snow measurement summit held in the 1990s that observing loophole was closed. It was established that the daily reported snowfall should be the maximum observed depth. But NWS added an exception for their staffed sites that were still doing 6-hourly synoptic observations. They were allowed to clear their boards and sum the four incremental 6-hourly totals. In some cases, this would produce daily totals exceeding the max observed depth – but not nearly as dramatic as it had been when hourly increments were summed. But in either case, the measurement resets at the time of observation each day.

The National Weather Service, in cooperation with CoCoRaHS, revisited snow measurement protocol in 2013 and issued [slightly revised guidelines](#).

Q. We recorded a **significant weather report** of 9" snow fall today here in Minnesota.

Do I still report this snowfall again tomorrow for my daily report or not?

A. Yes. The two reports serve different audiences so please do include this in your daily report for March 16. Glad you asked!

OK -- now we should be done with snow (maybe 😊).

WxTalk Webinar - Mount Washington - 'Home of the World's Worst Weather' - May 6, 2021 at 1:00 PM Eastern

CoCoRaHS WxTalk Webinar Series

Presented by Brian Fitzgerald, Director of Science and Education Mt. Washington Observatory North Conway, NH.

Back on April 12, 1934, weather observers at the fledging nonprofit Mount Washington Observatory recorded a world-record wind gust of 231 MPH, which still stands as the fastest wind speed directly observed by humans on the surface of the Earth. Since then, MWO has amassed one of North America's longest-running climate records with 24/7/365 human-verified measurements in one of the harshest environments on the planet. Join MWO's Director of Science & Education, Brian Fitzgerald, and he shares about the climate of Mount Washington, how this historic mountaintop weather station operates, and current research and product testing projects happening on the "Rockpile. [Register here!](#)

Farm Story - Horses, Chickens and Tornado Dreams

Well, Tanner (the proud, strong quarter horse gelding we've been boarding for a recent CSU grad) moved out this week (I think for the second time). That's the horse who crosses irrigation canals like there's nothing there and chases the mares just for fun. One thing I can say is that the three mares are in fine physical condition, now – slim, trim and quick – thanks to Tanner. He was scheduled to move down to Alamosa a couple of weeks earlier, but the big snowstorm got in the way. As for our pasture, we'll see how it recovers. It looks more like a dirt racetrack than a pasture now, but I'm confident that things will start greening up soon. Hopefully more of that grass will come back.

The snow was deep enough last week that the horses didn't venture out of the barn for four days – and hardly drank any water either. Maybe they eat snow but I've never seen it. I'm happy to say that our student housemate farm-hand kept the horses fed and the stalls reasonably clean – all things considered – and without complaint. OK, she did complain a little when every wheelbarrow we owned was full of saturated manure, and the slush and mud were so bad it sucked your boots off just getting out to the barn. You can see where the term "mucking" came from, that's for sure. So now the question is, will our hay supplies hold out until first cutting comes around sometime in June? It will be nip and tuck.

The chickens didn't much care for the big snow, either. They stayed in their coop for three days but quickly came out once we shoveled them a path down to bare ground. It's been ten days since the storm ended, but egg production is still only half of what it had been.

Our rooster is a real "piece of work". He crows ceaselessly and is getting ever more aggressive towards us humans. Little does he know these traits will add neither quality nor quantity to his life. His efforts to control and direct the hens are failing badly. All I can say is he certainly is lucky that no predators have appeared here in recent months. As a result, we've gotten in the habit of giving them free range freedom in the late afternoon. Some of the hens quickly run (as only chickens can hilariously do) a full 100 yards over to check out our son's place next door. It seems their little chicken brains associate his place with luscious late-summer grasshoppers and other dining delectables. After all,

he did gather jars of grasshoppers last summer and poured them out so the chickens could chase them down and catch them – which they were quite skilled at. Even after months of winter, they still come running whenever Joel walks down the path from his place to ours. Anyway, as the hens take off “running”, the rooster follows for about 75 yards but then, as they approach his usually-open gate, he (the rooster which we have strategically not named) stops and pretends to find something yummy and wonderful in hopes of attracting the hens. He puts on a fine show, which the hens simply ignore and continue through the gate. After a short period of utter frustration, he then returns to the chicken coop and, sometimes with one or two of the oldest and tiredest hens at his side, turns in to roost – a full two hours before sunset. What is he thinking??

The worms in the hoop-house (yes, this is really what my soil-scientist wife does for both fun and occasionally a little profit) have come out of their winter ‘hibernation’ - or whatever you call their near-frozen state - and are ready for action. By the time I next write, we will be in full vermicompost mode around here. Can’t wait.

Finally, and this really has nothing to do with this old remnant farmstead that we live on – or at least nothing that I’m aware of -- I had a tornado dream last week. In my youth, growing up in central Illinois in an area that I later learned was definitely tornado country, I had relatively frequent tornado dreams. They weren’t nightmares per se, but they were powerful dreams that would stick with me for hours or even days after waking. They were not so much dreams about tornadoes as they were “tornado dreams” – adding a level of mystique and fearful mystery, as well as excitement to my country life. When I went away to college, while writing a term paper for one of my very few ‘elective’ classes (a 200 - level psychology class as I recall), I discovered that many of my fellow meteorology classmates (from a sample size of no more than 14, mind you, none of whom were enrolled in this psychology class) also had occasional tornado dreams and so became the subject of my research. I discovered some fascinating similarities in the dreams. But as I got older, all dreams – or at least dreams that I could remember long enough to describe after waking -- became fewer. Tornado dreams, in particular, disappeared almost completely from my life. And so it came as quite a surprise that last week for no discernable reason while dealing with a sore back aftermath of the big snowstorm, I had a dream. It was unique in that I seemed to think I was experiencing this tornado in the unlikely location of a large city in New Mexico – yet similar in feeling to many of the dreams I had in my younger years in rural Illinois. I could sense the presence of the developing tornado, but never really saw it directly. Often, in my Illinois dreams the tornado was lurking out of sight somewhere behind the grain elevators, while in this recent dream it was just on the elusive other side of the high-rise hotel complex (which there are, in reality, very few in New Mexico). Well, I just had to share this, so thanks for listening.

Conclusion and Encouragement

If you stuck with this email all the way to the end, more power to you. The fact that you've stuck with CoCoRaHS – or ventured to start with it – is wonderful enough. Please know, rain or shine, hot or cold, west or east, north or south, your willingness to participate in this band of weather watchers / rain gauge readers/ snow rulers and zero heroes is greatly appreciated. I hope you are able to derive some satisfaction from your efforts beyond this virtual pat on the back.

Best to all,

Nolan Doesken and the CoCoRaHS team
NOAA's Weather Ready Nation Ambassador Program
Colorado State University
