

The Catch

COCORAHS -- THE BLIZZARD AND WHAT FOLLOWS

FORT COLLINS, CO — Tuesday, December 28, 2010

Greetings!!

I'm not sure how you feel about snow. Some of us love it. Some of us hate it. Some of us put up with it, but many have moved to get away from it. Some of us probably loved snow more until we tried to measure it. But it is that time of year. Read on and you'll find a few tips on measuring blizzard snows. But first some other business.

Welcome new CoCoRaHS volunteers.

We've added a few dozen CoCoRaHS recruits since I last wrote in mid-December. Rain gauge greetings and a Merry Christmas to all of you. I hear that some of you even found a rain gauge nicely packaged and wrapped under your tree. That brings back some memories. I was a teenager when I first saw the 4" diameter clear plastic rain gauge in a hardware store in Urbana, IL back in about 1968. It cost \$25 -- a lot of money for then, but I dug into my paper route money and bought one for my dad. That, and the iron dachshund foot scraper were some of the most appreciated gifts.

The eclipse

I hope some of you got to see the lunar eclipse last Monday night. Skies cleared here at just the right time and the eclipse was wonderful -- that is, of course, if you could stay awake. I managed to see the early stages and then dropped off into deep sleep and missed the rest.

California Storm Quickly Forgotten -- replaced by East Coast blizzard

Weather news changes so quickly. Just a few days ago it was the California floods we were tracking. 436 Californians sent in CoCoRaHS rainfall reports from Dec 16–22. 21 of these observers received over 10" from the week-long deluge and dozens more got between 8 and 10 inches. Areas near Los Angeles were especially hard hit.

Now the weather news is coming from the other coast. The storm developed rapidly on Christmas day bringing snow to parts of the Southeast and then raced up the East Coast Sunday night and Monday morning leaving a fairly narrow but very heavy band of snow that clobbered New York City. We don't have many observers in the City or on Long Island, but we have a good number in New Jersey and the New England states. Thanks for the wintry heroics that some of you endured to get good measurements. We had over 1100 hundred snow reports Monday morning. Good job.

Where will the next weather news come from? Will it be another snow storm in Seattle or wicked cold in the Rockies, or winter tornadoes in the South or an ice storm somewhere in the Midwest or southern plains? Wait a few days and we'll find out -- and CoCoRaHS will help tell the story.

A Beautiful Calendar

If Santa forgot to bring you or your office a calendar this year, then I have a suggestion. I know where you can get a unique, eye-catching, conversation-starting calendar featuring CoCoRaHS rain gauges in action. Now what could be better than that :-)

But seriously, if you like weather, geography, nature, seasons and rainfall measurements, you'll really love this calendar. We realize that shipping costs seem high -- over \$4. But that means you'll get the calendar shipped quickly and securely. Please order today. Here's the link.

<http://www.weatheryourway.com/cocorahs/cal2011coco.htm>

Fund raising for CoCoRaHS

We have one week to go to wrap up our year-end fundraiser. It's been fairly slow so far and, to be honest, I don't like asking for financial contributions. I'd much rather talk about the weather. After all, CoCoRaHS participants already share a wonderful gift -- the gift of time -- as we check our gauges and report our data. But I have learned that

many people truly love to help important causes. Donations in 2010 helped CoCoRaHS through some challenging months. A business sponsor even supported the CoCoRaHS rain gauge contest at the American Meteorological Society Annual Meeting last January.

As 2010 comes to an end, please support your favorite non profits if you are able.. There are many out there providing critical support to meet essential human, animal or environmental needs. Then, if you'd still like to help CoCoRaHS, here's the link.

<http://www.cocorahs.org/Content.aspx?page=2010yearend>

There's even an option to make a donation and get a calendar. Your help is truly appreciated and in 2011 we'll be working hard to thank you in return.

Snow Measurement tips for Blizzards and badly behaving snow

Here in Fort Collins, we haven't had a flake of snow in over 4 weeks. But that's not been the case for many parts of the country. Several thousand of us have had snow to measure and some have had a LOT!

There are times when measuring snow and its water content are fairly easy. When the winds are light and temperatures are well below freezing, it's pretty easy to stick the ruler in the snow to get the snowfall amount and bring in the snow in the gauge to get the melted water content. But throw in some sleet, some freezing rain, and a whole lot of wind and things get really messy in a hurry. Even experienced professionals struggle.

Here are a few tips on measuring snow under duress -- 16 tips to be exact. Read at your leisure or as the next snowstorm approaches. If you have other questions, please ask.

1) When in doubt, follow the instructions :-). There are many training resources on the CoCoRaHS website to help you learn how to measure snow and its water content. Use them.

2) Don't put your body and health at risk just to try to get a good measure of snow and it's water content. Yes, the data are important, but so are you. So be careful. As easy as it may normally be to go out and check your gauge, in a blizzard or an ice storm, it's a whole different story.

3) Remember that Precipitation (water content) and Snowfall are two separate measures. Don't enter your snowfall amount (e.g. 3.5") as your precipitation amount. We've had a lot of those lately so we programmed the computer so that you can't enter the precipitation amount and the snowfall amount to be the same.

4) If you can't or prefer not to get a measure of the water content -- that's OK. For example, if you measure 12" of new snow but you didn't melt it down to get a precipitation amount, then just enter NA for "Rain and melted snow" and enter 12.0" for the snowfall amount.

5) If there is a lot of blowing and drifting, you may not find any ideal place to measure the accumulation of new snowfall. Your favorite snow measurement surface may be blown clear or may be buried by a drift. Plan to take several measurements and compute an average. Under extreme blizzard conditions you may need to simply provide an "educated guess" based on reasonable measures.

6) When you compute an average, don't include the depth of the largest drifts in your sample/

7) If there are many buildings and roofs in your neighborhood, keep in mind that the snow often blows off the roofs and collects below. As a result, we sometimes see measurements that are likely too high from densely populated neighborhoods. Keep that in mind as you measure.

8) When there is considerable wind, your gauge will likely catch only a fraction of the snow that fell. What you find in your gauge may be very unrepresentative. For example, there were places on the East Coast on Monday who had snowfall amounts up around 15-20" but who had precipitation measurements less than 0.75". This is certainly possible for dry snows with lighter winds, but wind-driven blizzard snows are usually compact and dense and will likely have between 0.07" and 0.12" for each 1.0" of new snow.

9) If you suspect undercatch (less snow landing in your gauge than what actually fell) then take a representative core sample of the new snow on the ground. Take a core at a location where the snow is an average depth.

10) Your outer cylinder is 12" tall (unless you are an official NWS Cooperative Observer, in which case your gauge is 24 inches tall) You would think that a 12" gauge would be able to handle a 12" snow but it usually can't. The gauge begins to fill to the top and begin spilling after only about 6" of new snow has fallen.

11) The rain gauge outer cylinder is for collecting snow to measure its water content. Do not measure the new snowfall in the outer cylinder. Measure new snowfall on the ground at one or more locations.

12) It is really, really handy to have an extra outer cylinder for helping with snow measurements. You can order an extra cylinder by itself for a reasonable cost from www.WeatherYourWay.com and possibly from other companies, too. Also check with your state or regional coordinator in case there are any spares available.

13) Before submitting your daily report, always do a "reasonableness check". Does each measurement make sense and do the set of readings match up? For example if you measured 10" of new snow and 2.05" of water content is that reasonable? It might be if the snow was extremely wet or if there was a lot of rain mixed in with the snow. If it was only snow with a fairly typical density, then this report would be unreasonable -- either the snowfall is too low or the water content is too high. While snow rarely has an exact ten to one ratio of snow to water, that may be a good first guess for a wet or wind compacted snow.

14) (similar to 8) Always check your snow- to-water-content ratio.. You can tell a lot about snow just by walking through it, shoveling it, squeezing it, etc. You may be able to make a good estimate of the water content just by lifting a shovelful of snow. Five inches of wet snow may have 0.50 to 0.60" of water content and it will feel very heavy when you lift it. But a dry, low density snow of 5" may weigh very little and may only contain 0.15 - 0.30" of water content or even less.

15) Report your total depth of snow on ground. That is a separate measure from your daily snowfall. Report total depth to the nearest 0.5" whenever there is any snow on the ground even if no precipitation fell today or in recent days. Knowing how much snow remains on the ground and watching it settle from day to day is very helpful information for many applications.

16) Snow depth decreases quite rapidly after recent large snowfalls. (this is called "settling", "compaction" or "densification". Find a favorite representative location and measure in that same area each day if the snow is no longer blowing and drifting. An average of several measurements may be necessary to get a good reading of the total depth of snow on ground. Watch the snow settle. And measure the water content (Snow Water Equivalent) too. It is fascinating to see that as snow depth goes down, its water content may or may not go down.

OK, that's more than enough about snow for one evening. I can't wait until we start doing CoCoRaHS training "webinars" next year. It will be easier to demonstrate than to describe in words.

Life on the farm

Well, it was going along smoothly until one day last week we looked at Lily (our Australian Shepherd) and noticed one side of her face was badly swollen. Did a horse kick her? Did a spider bite her? Did a rattle snake strike? It's just not the season for bugs or snakes. We tried to control the pain and swelling, but nothing worked. She was in so much pain she was acting crazed. So finally we took her back to the vet and said "please figure it out". Turns out it was an infection from a recently broken tooth that cracked while Lily was chewing on who knows what. The tooth was removed just before Christmas and they sent her home the next day. She moped around for a couple of days but starting yesterday she perked up and was back to her cheerful, exuberant and mischievous self.

Joy and Loss -- the circle

We're enjoying new life in our family with our little grandson. He's already 4 weeks old. We get to babysit tomorrow night as the young couple has their first chance to step out together for a couple of hours since the baby was born. It's just amazing holding that precious little baby.

At the same time we've been getting touching notes and letters from CoCoRaHS volunteers or family members sharing ailments, crises and loss. Almost every week we hear of the death of one of our CoCoRaHS family. When we started CoCoRaHS back in 1998, we were thinking about scientific data, research and weather warnings. But what we have found is all of that and more -- many rich, warm friendships, even if only via e-mail. When we learn that one of us is ill or has passed on, it hurts a lot. We know there will be joy and sorrow, so we really do appreciate getting those notes even though they sting. We will plow on. The weather keeps marching along regardless -- as it should.

Good night -- and holiday blessings to all.

Nolan Doesken
Colorado State University