The Catch

COCORAHS -- IT'S WINTER -- AND IT'S SNOWING

FORT COLLINS, CO — Monday, December 21, 2009

CoCoRaHS rain gauge watchers and snow measurers

-- if you live in a snow free area, you can skip over these first paragraphs.
-- if you're new to CoCoRaHS, welcome!

The big storm

Just a note to acknowledge the heroics of hundreds of you from western North Carolina to southeastern Massachusetts who did a bang up job trying your best to measure and report the big snow this weekend. Many of you sent in "Significant Weather Reports" in addition to your daily reports. I saw some reports of 3-5" of snow per hour on Long Island during the peak of the storm Saturday night and early Sunday morning. That is absolutely amazing. The winds sounded bad as well. Even in heavily wooded areas people were dealing with serious drifting problems (and power outages). As expected there were a few odd looking snow and water content reports, and some of you were probably thinking you must be crazy out there trying to take measurements. But overall you did great. Today it's remarkable to still see snow depth reports of anywhere from 12 to 20+ inches remaining on the ground from Asheville, NC to southeastern MA today. Welcome to winter! From here out, the days will be getting longer. We'll make it!

Thinking about snow density

Before you submit a daily precipitation/snow report it's always a good idea to examine your two measurements -- the water content (rain/melted snow) and the new snowfall amount. Think twice to make sure the ratio of snow to water makes sense. With this recent storm in the east, in the heavy snow areas the snow to water densities appeared in the range

of 10, 11 or 12 to one (i.e. 10-12" of new snow produced one inch of melt water). On the western and northern fringe of the storm, the densities were lower (i.e. less water per inch of snow). It's usually pretty easy, just by walking through or shoveling fresh snow, to approximate the density. Snow to water ratios can be as low as 3" or less of snow/ice per inch of water with sleet and very, very wet snow. But for fluffier snows with lacy ice crystals, ratios of 20, 30 or rarely even 50 to 1 are possible. Some of you who live in the snow belts around the Great Lakes are familiar with these low density snows as our some of us in the central Rocky Mountain areas.

Watching your gauge fill with snow

The large outer cylinder of the CoCoRaHS 4"-diameter rain gauge is 12" deep. You would think, then, that it should be able to hold 12" of fresh snow. But in reality the snow can stick to the gauge. Even in light winds, more snow fills the downwind side of the gauge than the upwind side. Basically, your gauge can fill up to top with as little as 6" of snow on the level ground. Don't put a ruler in your gauge to measure snowfall. That measurement should be taken on the ground. To get a reasonable gauge catch, you may need to empty it more than once during a storm -- or go out and compact the snow that's landed in the gauge. Make sure that the rim of the gauge is kept reasonable clear of accumulating snow (not always possible, I realize).

The reason for taking snow core samples

In windy conditions, your gauge will likely miss a lot of the snow that's falling. That's why it's important to try taking a core sample of the new snow that's accumulated on the ground (in a representative location, of course). Compare your gauge catch to your core sample. The larger of the two water contents is usually closest to the true precipitation amount. That's what you should report, but mention the difference in your "comments"

Report total depth of snow on the ground

We're doing a much better job now of reporting the total depth of snow on the ground. Even when dry weather returns, keep on measuring/estimating the average depth of snow remaining on the ground each morning.. It is important and darn fascinating to watch

snow go away -- not quite as fun as watching it fall -- but interesting just the same.

Plains states -- now it's your turn

The winter weather watches and warnings are now being issued left and right as a new storm takes shape tomorrow over AZ and then heads NE. This could be a blizzard, so please prepare. Blizzard snows are impossible to measure accurately. You just have to do your best estimation and averaging.. Blizzard snows may be low density as they fall, but as the crystals are blown and drifted, they shatter leaving less air space in the snow. The result is that the snow that accumulates on the ground is often quite dense. So keep this in mind as you make your reports and as you deal with the consequences. Good luck.

Parts of the country can relax

And for those if you in snow free areas of the country, just kick back and have a great Christmas and holiday season and don't worry about measuring snow.

Fund Raising progress -- Five for CoCoRaHS

Donations to help sustain CoCoRaHS for 2010 are coming in. We'll give you a progress report later next week. Thank you so much for those who are able to help. $5 doesn't sound like much, but when many help, it really adds up. We greatly appreciate your generosity.

Quiet for a few days

Our family will be heading out for a few days so you won't be hearing from me for a while. Our two adult children live nearby and they are treating us to Christmas in a yurt. If you don't know what that is, I'll explain later. I'm a little apprehensive as I see this next cold wave come in, but I've heard those yurts are cozy -- if you don't let the wood stove fire go out.

Best holiday greetings and wishes to all of you!

Nolan and the CoCoRaHS staff (Henry, Julian, Zach and Noah)

P.S. Come visit us in 2010