

# The Catch

## GOOD QUESTIONS ABOUT RAIN GAUGES AND HAIL PADS—AND OTHER COCORAHS

FORT COLLINS, CO — Friday, May 27, 2005

### **CoCoRaHS update**

Chance to unsubscribe: If you are no longer participating in CoCoRaHS AND you no longer wish to receive our periodic e-mails, please send a message saying

"Please close my station and unsubscribe me from your mailing and e-mail list."

Send this to [info@cocorahs.org](mailto:info@cocorahs.org)

### **Rain in Las Cruces**

Based on our weather conditions here in Fort Collins the last couple of days, rain was the farthest thing from my thoughts. All we've had is cool temperatures and clear blue skies -- quite delightful, actually. But I just happened to click on the New Mexico CoCoRaHS precipitation map this morning. Much of the New Mexico map remains blank with no volunteers yet reporting. But right over Las Cruces, the home of New Mexico State University, the map was dotted with many observations. There, in our southern desert, at a time of year when it usually forgets to rain, was a bunch of rainfall reports from a lively thunderstorm last night.

All things considered, rainfall over the city was remarkably uniform varying mostly between 0.34 and 0.46". But just southwest of town over an inch fell, while less than a quarter of an inch landed NE of town.

Since Kansas, New Mexico and Texas joined CoCoRaHS in early March, there have been several days where most of our area has been dry, but only two days (April 2 and 3) when not a single station reported measurable precipitation. It will be interesting to see, now that we are in the "afternoon thundershower" time of year, if we will see any more days where the whole region is dry. Likewise, it will be very difficult, and possibly impossible, for all of us to get rain the same day. We shall see.

## **Some rain this weekend**

With cool air to the north and some moisture coming up from the south, there will be some precipitation over our area this weekend. Many of you may be out and about this Memorial Day Weekend, but if you can at least catch the 3-day total, that will be helpful.

## **Calling Sublette County, Wyoming.**

Over the last several months, dozens of new volunteers have joined CoCoRaHS in Wyoming. We now have volunteers in every county but one—Sublette. There must be at least one weather enthusiast there. So if you know them, please have them sign up soon so every Wyoming County will be represented.

## **More PR**

Yikes—more national publicity. I understand that FOX Network ran a special national news feature about CoCoRaHS this evening. Some folks must have time to watch news on cable TV because within a few minutes we heard from people in at least 16 states asking if we could get CoCoRaHS started in their areas. I'm afraid they will have to wait as we are still trying to get our own act together. I haven't seen the story, but I know they interviewed and filmed at least 3 of our volunteers. Good job.

## **One of many good questions**

Almost every day we field some very good questions. Here is one we got this week from one of our Kansas volunteers. It is well worth sharing.

*"Nolan: I have observed that sometimes in the very high wind area that I live in, that rain and hail will bounce out of the plastic funnel because of the lateral wind speed of the rain. With last evening's rain and high winds, my NWS-supplied rain gauge showed .57 inches. But, my electronic Oregon Scientific gauge (4" opening, no funnel) showed .67 inches. I think that I will show a more accurate rain reading in my location if I leave the funnel out and just pour it into the funnel for a precise reading. What are your thoughts on this procedure? Would all CoCoRaHS members have to do the same thing in order to proportionally maintain quality readings, since a high wind is often a common denominator in thunderstorms? "*

My Answer:

"While our rain gauges are very nice, and can be used year-round, they are not perfect. The two most difficult situations are wind-driven snow and wind-driven rain and hail from summer thunderstorms. We have had squalls out on the Great Plains with more or less horizontal rain and hail. Under these circumstances, our gauges definitely "under catch" which means that they are not catching and measuring everything that falls. Hail stones, even some that fall straight down, do bounce out.

A solution that may help is to remove the funnel and inner tube (just like you do in the winter) and catch the precipitation in the large outer cylinder. Then, as soon as the storm ends, go out and measure by pouring from the big tube into the calibrated measurement tube using the funnel to avoid spilling. We have seen instances where we may miss up to 50% of the precip when hail is bouncing out of the gauge. There is a disadvantage to this technique, though. You will have to measure right away as soon as a storm ends and not wait until morning. Otherwise you will be missing some precipitation since it can easily evaporate without the funnel in place.

Some of you have your own little research projects going. If you happen to have two gauges, place them side by side -- one with the funnel in and one without. You can then see for yourself the situations where the two do not match identically.

### **Researcher Wanted!**

To help study local rainfall patterns and under-catch associated with ferocious wind-blown rain and hail, we would like to find an avid volunteer who lives in a stormy place in a rural setting (maybe W. Kansas, Nebraska, or extreme eastern Colorado) who might be willing to set up anywhere from 8 to 24 CoCoRaHS rain gauges (we will provide them) in various locations around the house, yard and farm. Then, of course, each gauge will have to be carefully read and recorded after each storm without getting them mixed up. Wind speed, direction, storm time and duration, hail, etc. will all have to be noted as well. A project like this might be best suited for a family with some potential young scientists at home who are willing to help mom or dad.

If you have a good place to conduct such a study, and the time and inclination to help as volunteers (no \$ available -- just ideas), then please contact me at your earliest convenience so we can get this set up before too much more of the thunderstorm season has passed.

nolan@atmos.colostate.edu or call me next week at 970 491-3690

## Another Question

"What is an easy way to firmly fasten my hail pad in place so it doesn't blow away?"

We hear this one a lot. As you know, I have been urging you to please put your hail pads out and get good data on each and every hail storm this year. But I'm afraid that many of our volunteers have never really gotten set up for measuring hail because they couldn't figure out a quick and easy secure way to install their hail pads.

Let me offer some suggestions, but you may have better ideas.

1) There are a limited number of hail pad mounting brackets available now, mostly in the Longmont and Denver metro area. Please contact your local coordinator to make arrangements to get one. By the way, a girl scout in Jefferson County manufactured 30 hail pad holders that also double as snow boards in the winter. She did this as a service project, and it was much appreciated.

2) While it is important that the hail pad be firmly attached to a smooth, solid and horizontal surface, this can be accomplished very easily. In a pinch, just take a metal clothes hanger from your closet, straighten it out, and then cut it into about 12 inch lengths. Bend it in such a way that you make a couple of wire rickets like in miniature croquet set. Push these into the ground at opposite corners of your hail pad to hold the pad in place snug to the ground.

3) If you have a couple of full-sized concrete blocks, they work great. Lay two blocks side by side on their sides. Set your hail pad on top of the solid smooth surface and then tightly stretch a bungee cord across the top to hold the pad down.

4) In a pinch, just drive a couple of nails through the pad into a board—or you can even use 5" or longer spikes pounded into the ground if that's all you have.

Of course, we want the hail pad installed on a smooth, solid surface snugged down as tightly as possible to achieve the best results. But anything is better than keeping the pads in the kitchen, garage or hall closet. **SO GET THEM INSTALLED!**

If you have other suggestions for cheap and easy ways to secure your hail pad from the whims and winds of nature, please let us know.

Darn, I've gone overboard again. I'm sorry. I do wish all of you an enjoyable weekend, and don't forget the significance of Memorial Day.

Sincerely,

*Nolan Doesken*