

# The Catch

## **REPORTING HAIL AND HEAVY RAIN**

FORT COLLINS, CO — Wednesday, May 31, 2006

At last, the obnoxiously dry spring of 2006 over eastern Colorado is giving way to our typical bouts of unsettled late May/early June weather with episodic severe weather. Several big storms are raging over eastern Colorado even as I write this message, and there are some dark-bottomed towering cumulus clouds outside my window. But if these storms miss us, our total precipitation since April 1 will be a mere 1.09" compared to an average of 4.69" (our wettest time of the year, normally). Our spring moisture here is very important, so we are not feeling too good so far.

It has been fun looking at the precipitation maps from Missouri and Indiana, now that they have many people reporting. We've already seen some huge variations in precipitation over very short distances so we immediately can see the importance of having a high density network (we call it "High Definition Precipitation Monitoring").

Our threatening weather today reminds me of a few questions that have come up that I have not had time to answer individually. We have added many new observers in the past few months, so it is important that we all be on the same page. Here are some questions we may all face?

### **Question: What do I do if it hails?**

**Answer:** First of all, don't go out in the hail if you can help it. Please have a hail pad mounted and ready with an arrow already pointing north on the surface, back or edge of the pad so we can tell directions.

If you do NOT have a hail pad, you can still measure and report the hail by looking closely on the ground and measuring the diameter of the smallest, typical and largest stones and estimating the number of stones.

As soon as you feel safe to get on the computer as the storm passes, sit down and send in a "hail report"—filling out as much of the information as you can. Just click "My Data" and you will see the menu of data entry reports to choose

from. If you were not home to see the hail fall, you should still fill out a brief hail report later on so we know that you had hail that day.

**Question: Is it OK if I just mention the hail in my daily precipitation report the next morning?**

**Answer:** We are seeing dozens of reports of hail mentioned in the comments section of the daily precipitation report. This is good and we appreciate it, BUT in order to include your hail information in our hail research, we ALSO need you to fill out a hail report

<http://www.cocorahs.org/Admin/MyDataEntry/HailReport.aspx>

All hail reports can be quickly and easily analyzed and summarized. And you can study the hail characteristics of your state and county just as easily as I can by clicking "View Data" and then selecting any of the "Hail reports". You will soon see why your hail reports can be so helpful.

<http://www.cocorahs.org/ViewData/ListHailReports.aspx>

**What constitutes "Intense Rain" and when should I report that?**

We are somewhat vague about this in our instructions, as the definition of "intense rain" may vary from one part of the country to another. We welcome "Intense rain" reports any time you feel the rainfall is heavy and of interest to others. But specifically, anytime you receive at least 0.30" of rain in one hour, it may be worth reporting. The heavier the rain, the more important your report may. We encourage "intense rain reports" anytime the rain seems heavy, but we STRONGLY ENCOURAGE these reports any time you get rainfall rates of at least two inches per hour. In other words, 0.50" in 15 minutes, 1.00" or 30 minutes, 1.50" in 45 minutes or 2.00" in one hour would all be very significant. Rainfall in excess of 2" should be reported pretty much anytime it occurs regardless of its intensity.

Remember, your report of "intense rain" could help downstream flood predictions and could save lives.

<http://www.cocorahs.org/Admin/MyDataEntry/IntensePrecipReport.aspx>

**Question: If I am gone for a few days and it rains while I'm away -- what do I do?**

**Answer:** During this time of year when temperatures remain above freezing in most areas, just leave your gauge outside with the funnel and inner tube in place. Read the total accumulation in the gauge when you return, and then click "My Data" and select "Multi-Day Accumulation" to enter the amount

<http://www.cocorahs.org/Admin/MyDataEntry/MultiDayPrecipReport.aspx>

Based on nearby stations, you may be able to determine the exact day the precipitation fell. If so, then enter a "Daily Precipitation Report" for the appropriate day and 0.00 for the days with no rain.

**Question: Do I have to report when it doesn't rain?**

**Answer:** We probably are asked this question more than any other. Remember, you are volunteers and you may have a very limited amount of time to donate to this project. However, your data are extremely useful and measurements of 0.00" of precipitation are important, too. As I have said before, reports of 0.00 are MOST important when scattered showers are nearby. The only way we know for sure that it DIDN'T rain, is if you tell us. So do you HAVE to report when it doesn't rain? NO, but we hope you do anyway. :-)

**Question: I don't always have time to report my rainfall right at 7 AM. How soon should I report?**

**Answer:** For climate purposes, timeliness is not critical. Some of you send in your reports days, weeks and sometimes even months later and I can still make good use of that information. However, for weather prediction purposes, timeliness is very important. The National Weather Service, to get maximum use of your data, would like to see as many reports as possible by 8 AM. Again, you are volunteers, and you can only do what you can do, but do realize that the sooner you can report in the more uses there are for your data.

**Question: If it hails in the rain gauge, do we let it melt and then report it as rain in our daily precipitation report?**

**Answer:** Yes, hail is like snow—we need to melt and measure the water content and include that in our daily precipitation report—and note it in your remarks.

But this raises an additional question. When it hails, does our gauge successfully catch all the hail that falls? Probably not. I've actually spent some

time standing outside beside my rain gauge during hail storms watching to see how much hail stays in the gauge and how much bounces out (and making our neighbors pause to question "what is Doesken up to now??"). The answer depends a great deal on the size and hardness of the hail and the angle that it falls, but under many circumstances, hail bounces out of the funnel that really should be counted as precipitation. Our precipitation measurements during hail storms, therefore, may be underestimates.

The only ways I know to handle this that I know of are:

1) Have two gauges side by side—one with a funnel and inner tube and one with only the outer cylinder. The gauge without a funnel will lose more water to evaporation after the rain ends—so measure right away! But the gauge without the funnel will catch nearly all the rain and hail without it bouncing out. So this may be the best measurement.

2) If you only have one gauge, then if you are home and think a storm may produce hail, run outside before the storm hits, and remove the funnel and inner tube. Then, as soon as the storm ends, pour the contents back through the funnel into the inner tube to get your measurement. Then return the funnel and inner tube—and sit back and rest.

Regardless of what you do—or if you just leave the funnel and inner tube in place but think some hail may have bounced out—then please mention this in your "observation notes".

When in doubt—write notes. Anytime any of you have a good storm, we are checking for notes! :- ) so we can understand when and how the storm hit you.

### **Rocky Mountain Weather and Climate Workshop—a great success**

I am sorry that I had to miss the workshop this year due to the recent loss of my mother-in-law, but I understand it was a rousing success with close to 115 people present. People came from many parts of Colorado plus a few attendees from Wyoming and New Mexico. Thanks to everyone who made this year's program such a big success, and thanks to some of you for writing to tell me about it.

### **Will we reach 2000 ??**

With rapid growth of CoCoRaHS in Indiana and Missouri, we are now getting as many as 1400 precipitation reports each day. Our e-mail list is now well over 3000 and we have distributed close to 4000 rain gauges. Just imagine if we all

reported each day!! By early September we could see more than 2000 reports per day—at least on the stormy days. Let's shoot for this goal

### **Thanks for your kind messages**

I was overwhelmed with the outpouring of sympathy from people all across the country with the recent loss of my mother-in-law. That was so kind of you. One of the highlights of the mourning process was a trip out to "the prairie" of eastern Colorado and a drive past the old homestead meeting up with some of the eastern Colorado and western Kansas "cousins".

We were treated to an unexpected 0.40" of rain (much needed), a spectacular rainbow, nearly calm conditions after the storm (quite unusual on the Great Plains any time of year) and an inspiring sunset chorus of meadowlarks. Ashes to ashes, and dust to dust—but life goes on.

### **Next Comes Oklahoma**

Should you have any weather-watching friends or family in Oklahoma, please let them know about CoCoRaHS. We are planning to launch the project in OK on June 15th, so any time after that, people can begin signing up.

### **Best wishes**

Summer weather is here now. The Rocky Mountains snows have quickly melted except up high (our station near Crested Butte finally saw bare ground on May 13th after 196 consecutive days with snow cover (I think there was some celebrating there). Gardens are planted, and crops are developing. I wish you a good summer, with adequate rainfall, and may the hail storms go elsewhere.

*Sincerely,*

*Nolan*