

# The Catch

## **COCORAHS UPDATE: TO AUTOMATE OR NOT TO AUTOMATE?—IS THAT YOUR QUESTION?**

FORT COLLINS, CO — Tuesday, November 7, 2006

Greetings!

It's a dry and mild day in Colorado and the Rocky Mountain region. Our temperatures reached the mid 60s yesterday with prospects of 70 F (21 degrees Celsius) the next two days. I know some of you think we live in the ice box here in Colorado, but it's really not so bad.

### **Wet at last—but not everywhere**

At last, we had a wetter than average month here in Fort Collins in October with a couple of wet snows. The total precipitation (rain plus melted snow) was 2.30" at my house. Using the "Total Precipitation Summary" report (<http://www.cocorahs.org/ViewData/TotalPrecipSummary.aspx>) I can quickly see that there were dozens of stations in Colorado that got over 4" of moisture in October, a handful that exceeded 5", but many that got less than 2". Our driest CoCoRaHS weather stations were found in Wyoming where some reported less than 0.50". Kansas and Missouri saw large variations. CoCoRaHS states east of the Mississippi were more uniform. If you really want to see some extreme variations, check out Texas. October precipitation ranged from 0.74" at Dalhart up in the panhandle to nearly 20" a couple of our new stations near Houston (Yes, I said twenty inches!). While I can't even fathom 20" in a month, it doesn't seem to phase them that much. One observer did mention "minor flooding" but that was about it. Today, it's raining across Indiana with storms spreading eastward. But for us the dry weather has returned and it's been 11 days since I found anything measurable in my gauge.

### **National precipitation maps—CoCoRaHS is helping**

If you have a reason to be interested in precipitation patterns across the country, here is a website that might interest you.

([http://www.srh.noaa.gov/rfcshare/precip\\_analysis\\_new.php](http://www.srh.noaa.gov/rfcshare/precip_analysis_new.php))

These maps provide precipitation ESTIMATES derived primarily from NOAA's National Weather Service network of weather radars. Radar can provide an estimate of precipitation, but without gauge readings to calibrate the radar, they aren't always accurate. The NWS is using CoCoRaHS data in some parts of the country to improve precipitation estimates. So when you look at this map (which is amazing in many ways), please know that CoCoRaHS is contributing and will help more and more as we add volunteers and expand into new states.

## **New States!**

Speaking of new states, we continue to see a steady stream of new applicants to CoCoRaHS. A new state has just signed up. Montana will be joining the CoCoRaHS team in December. That's a mighty large state with a lot of variations in climate, so this will be a fun addition. If you have friends and relatives up there, let them know! We'll all have to teach and encourage them to measure snow! :-)

## **Electronic rain gauges**

On almost a daily basis folks are telling us that they would rather not use our recommended 4" diameter plastic rain gauges and instead use their own gauge. Many of our participants have recently purchased or received electronic weather stations as gifts. These new weather stations are great to have and we hope you use and enjoy your home weather station. HOWEVER, when it comes to measuring and reporting precipitation, please stick to using the gauge we recommend. Let me tell you why.

Rain gauges are not all created equal and do not all report the same. Some of the differences result from gauge location, but some differences are a result of how the gauge works. I have been involved in rain gauge studies for many years (more than 30) and have compared results with many other studies. We have compared the CoCoRaHS 4" diameter gauge to the National Weather Service 8" diameter Standard Rain Gauge and with many types of automated and manual gauges. We have even tested many National Weather Service Automated Surface Observing System tipping bucket gauges. The automated gauges are great for giving instantaneous data and rainfall rate information. This is very useful. But when you add up the totals—week by week, month by month, the majority of automated rain gauges, report less precipitation than the CoCoRaHS gauge—sometimes by only a little, but often by 20% or more. Such large differences are not acceptable for our project. Some gauges in some parts of the country and in some times of the year compare favorably. However, the majority that we have tested indicate less precipitation than what likely fell. And for those

of you who live in areas that receive snow, the automated stations are not well designed for measuring the water content of the snow.

Because of these results, we ask those of you who have electronic rain gauges to please set up a 4" gauge along with your automated gauge and see for yourself how they compare. If you have time, enter the data from the 4" gauge in your CoCoRaHS daily report but enter your 24-hour total from your electronic gauge in the "observation notes". Two gauges are better than one, and it is fun to see when and why the gauge readings differ. We operate 5 gauges simultaneously at our official station on the Colorado State University campus. The data are usually similar, but rarely identical. If it is necessary to use your electronic gauge for your daily or multi-day report, then please mention that in your "observation notes" so we interpret the data appropriately.

If you have an electronic rain gauge and find that it is too much time and trouble to also read a standard manual rain gauge, you can still be of service. The Citizen Weather Observation Program (CWOP) continues to recruit people who can hook their home electronic weather stations up to the internet to share data automatically. This makes home weather station data available to the National Weather Service for many real-time applications. But for climate, water, agricultural and research applications, we hope you stick with CoCoRaHS and use the basic old rain gauge where you still have to go outside to check it.

### **Your rain gauge can freeze and break—so don't let it!**

I hate to guess how many of us have had our rain gauges break when we left water in the inner cylinder and then it froze. The force of expansion from freezing water is incredible and can break rocks, roads and rain gauges. SO, if you want to avoid this embarrassing problem then remember to remove your funnel and inner tube when cold weather and snow is anticipated. The outer cylinder can take some punishment, and if water freezes inside it's usually not a problem. But for the inner cylinder—water plus cold weather equals trouble.

### **CoCoRaHS website and database upgrade coming soon.**

I just wanted to give you a heads up that CoCoRaHS is outgrowing our database and shared web server (well over 1,000,000 precipitation reports have been received and our website is being visited left and right). To keep pace with our growth, we will be updating soon. I will give you more details as the day approaches. Changes always scare us since something could break or the system could crash. We are trying to take precautions to avoid this. Stay tuned.

**Stay busy!**

As the days get shorter and darker, keep active and get ready for what's around the corner—our next storm.

Thanks for your interest and involvement,

*Nolan Doesken*  
CoCoRaHS