

The Catch

COCORAHS – MEASURING REALLY BIG RAINS

FORT COLLINS, CO — Saturday, April 5, 2008

Good morning.

One of you was kind enough to send me an e-mail this morning alerting me to the heavy rains that had fallen overnight in southern Alabama. If you haven't looked, please do:

<http://www.cocorahs.org/Maps/ViewMap.aspx?state=AL>

Click on "Mobile County" on the Gulf Coast and you will see rainfall amounts as high as 11.20" most of which fell in 9 hours overnight.

Thanks to all of the many CoCoRaHS participants in Alabama and surrounding areas that struggled with heavy rain gauges this morning to provide excellent reports. The CoCoRaHS 4-inch diameter gauge has been proven to be quite accurate over a wide range of precipitation conditions. However, it is quite awkward to deal with for very heavy rains. For those of you who are new to CoCoRaHS or new to using this type of gauge, the inner cylinder only holds 1.00" (or slightly more). When rainfall exceeds that amount, any additional precipitation spills out of the inner tube into the larger cylinder. It will continue to collect in that cylinder up to about 11.30" where additional rainfall will spill out the top and be lost.

To measure the precipitation amount accurately from heavy rains you need to remove the gauge and bring it inside or to a convenient work area where you can set it down. Then, inch by inch, you need to empty the inner cylinder completely, and then pour the contents of the outer cylinder into the inner tube trying to avoid spilling. Make sure you write down each increment you measure as it is easy to get confused and lose track. It is a good idea to work over a bowl or basin so that you to pour exactly 1.00" each time, I just get the gauge partially full, write down that amount, and then sum up the increments. I can barely imagine what it's like to measure 11.20". That gauge was essentially full to the top this morning.

We're just barely getting started in the heavy rain season for parts of our country and already we've had 3 days where rainfall has exceeded 10" somewhere in our network and 2 days with totals exceeding 11". It is only a matter of time before we see localized storms far exceeding our gauge capacity. If your area should happen to experience extreme rains, have a plan. Do not put yourself at risk to check a rain gauge if flood conditions are developing. If you are in a secure place and there happens to be a break in the storm, go outside and read and empty your gauge during the day so there is room to accommodate additional rainfall should it continue. Some of you have home electronic weather stations with tipping bucket gauges. These gauges often report less rain than actually falls, but they do not have the 11.30" maximum capacity that our gauges do. You are encouraged to use your electronic gauge to report extreme precipitation. However, please note in your "comments" that the readings are being taken by your tipping bucket gauge. That will help in our interpretation of the storm.

Heavy rain events are a good opportunity to check the position of your gauge. Some of us do not have large open areas to mount our gauges. During very heavy rains, water can splash off nearby roofs, decks, and porches and can result in our gauges capturing more rainfall than what actually fell. Surrounding trees may block or enhance rainfall depending on winds and other factors. As you watch heavy rain splashing and spraying, make note in your comments if you feel that your gauge may be collecting additional water from splash.

"Splash" works both ways, however. When rain falls with very large drops and is also accompanied by winds, we believe that some of the rain that falls may be splashing out of our CoCoRaHS gauges -- not a lot, but some. If you have the luxury of having two CoCoRaHS gauges, one way to test is to mount two gauges side by side, one with the funnel in and one without. Rain is less likely to splash out of the gauge without a funnel. However, without a funnel water will evaporate after the rain ends, so please read your gauge soon after each storm. If you have the time and interest to operate two gauges, please let me know and then report back to me with your results. In most storms, it doesn't make a difference, and it is much better to use the funnel and inner tube. There are those situations, however, where splash can be a problem.

Meanwhile, for those of us who have not seen a rain drop in a long time, we should know that rains will fall eventually. For example, it's been nearly 50 days since the last precipitation fell in El Paso, Texas. And for many of us near the Rocky Mountains, we've seen snow but we haven't experience rain for several months.

One more thing

Almost 5,000 of us are now reporting regularly on a daily basis and the numbers continue to grow. Yet, as we look at the rainfall patterns this AM near Mobile Bay (rainfall ranged from near zero to over 11" over a distance of not very many

miles) it was obvious that we barely have enough data to depict the storm patterns accurately. Even though we have a high concentration of volunteers in Mobile and Baldwin counties in southern Alabama, we still have little idea how much rain fell in many areas. Rainfall can be so amazingly variable that unless we have a gauge there to measure, we often will not know for sure. So if you have the time, the connections and the interest -- your help in recruiting more people to help the CoCoRaHS efforts is greatly appreciated.

Coming Soon -- The CoCoRaHS National Maps

Many of you have asked if we could have one single map each day to show precipitation over the entire country. Now that we have volunteers in nearly 30 states, it makes sense to begin doing this. In the next few days we will begin testing an experimental national map. This is good, but this is also a little scary. The scary part is that if any of us accidentally type in the wrong number -- for example 15.00" when we meant to type 0.15" -- the world is going to know it immediately. So, as we head towards displaying national maps, do your best to measure and type accurately :-)

Have a great weekend, and thanks so much for your contributions to CoCoRaHS.

Sincerely,

Nolan Doesken