

The Catch

STORMS GETTING SMALLER?

FORT COLLINS, CO — Wednesday, August 24, 2005

CoCoRaHS Summer 2005 Findings

I am looking out my office window at a little dark cloud with a narrow rain shaft reaching the ground southwest of Fort Collins. This is another example of what we've seen a lot of in recent weeks—small but locally heavy rains. Take a look at the CoCoRaHS precipitation maps and you can find many examples. The map for Larimer County, Colorado for August 22, 2005 was a good one with several independent cores of heavy rain separated by dry areas. This is what we've always experienced during the summer but it is so neat to have enough data coming in from many areas that we can actually see it. The maps for Las Cruces, New Mexico for 8/5, 8/19 and 8/21 all point out extreme local variability as does the 8/21 map for Jefferson County, Colorado, the 8/22 map for Sherman County, Kansas, the Laramie County, Wyoming 7/31/05 map and many, many more. You may think we're crazy for wishing for one or more CoCoRaHS volunteers for every square mile of land, but this is the time of year when you can understand why.

Some Rainfall Statistics

Measurable precipitation has fallen somewhere in the CoCoRaHS network on every day since early April 2005. Since May 23, there have only been 10 days where less than 50 of our volunteers have reported measurable precipitation. That means that on 82 of the past 92 days, more than 50 of us have had rain to report. That keeps things interesting—and drought is not quite the hot topic it was just a couple years back.

Since April 23, 82 out of 122 days (approx 2/3 of all days) have seen measurable precipitation at 100 or more of our homes. During that same period, on 86 days at least one of us have reported over an inch of rain and on 37 days at least one of us have received in excess of 2" of rain. That number drops off quickly though for very large rains, and there have only been 10 days since April where rainfall has exceeded 3" in the WY, KS, NM, CO areas. Nebraska is a different story. They have had 16 days since May 1 where rainfall has exceeded 3" somewhere

in their state including the monster storms of early May that dropped nearly a foot of rain around Hastings and Grand Island.

Our largest number of rainfall reports came on July 26 when 1184 CoCoRaHS volunteers reported in of which 1081 of us had measurable precipitation and an additional 11 of us reported a trace. That same day, 554 Nebraska volunteers reported in to NeRAIN for a total of 1738. That's a lot of volunteer reports!!

Rain Gauge Study—Preliminary Results

I also wanted to mention some early results from the special rain gauge comparison study we started back in June. David Monheiser, science teacher at the Calieche school northeast of Sterling, Colorado, has instrumented two farms near Sterling with a total of 40 CoCoRaHS gauges. Some are close to buildings and trees, others are out in the open. A few have their funnels removed. Most are about 4-5 feet above the ground but a few are down closer to the grass. Some have a slight tilt to the north, others a slight tilt to the south, while most are perfectly horizontal. There have been a reasonable sample of storms since he got the gauges set up in early June, and we are beginning to see a few consistent results.

- 1) Gauges with their funnels removed consistently indicate less precip. than gauges with their funnels in EXCEPT for when hail falls. Then the gauges with funnels removed show more precip.
- 2) So far, there has been little significant difference between the gauges near the ground versus the ones mounted closer to eye level. Differences may be greater when precipitation falls as snow or when very strong winds are blowing.
- 3) Gauges that are not mounted perfectly level (he had some that were 5 degrees off level leaning north and some 5 degrees off level leaning to the south) show very large and consistent differences that can be as much as 20%. Those leaning towards the wind always collect more rain than those leaning away from the wind.
- 4) The gauges near buildings and trees show irregular variations that we are still in the process of analyzing and understanding.

In addition to this study, our colleagues at New Mexico State University have set up a dense local array of dozens of gauges just a few feet apart. They are studying sampling variability in gauge measurement and will have some results to share now that Las Cruces has had some summer storms.

We plan to continue these special gauge measurement studies and will be adding testing stations in western Kansas. Results are likely to be very useful and important enough to publish in scientific journals once we have enough test cases. We also have a Wyoming volunteer designing and testing home-made devices and wind shields for improving gauge catch efficiency in windswept environments.

So go check your rain gauge and MAKE SURE IT IS LEVEL!!

A Bold Weather Forecast

Even though thunderstorms have been developing across our area each and every day all summer, the fact of the matter is the t-storm season is nearly over. The frequency of thunderstorms drops off quickly after Aug 23 except over southern Colorado and much of New Mexico where storms remain fairly frequent on into September. Also, the frequency of lightning within thunderstorms also diminishes. This is because the heating from the sun is now decreasing noticeably providing less energy for convection. At the same time, the northern latitudes are beginning to cool and this cooling really gets going in Sept and Oct. As this happens, the westerly winds aloft will be increasing bringing in more dry air from the west and shunting the humid air from the south and Midwest off to our east.

As we move into Sept, expect more clear days (September has more cloudless days in our area than any other time of year) and less precipitation. But there can still be some surprising storms. Every few years a hurricane from the eastern Pacific off the coast of Mexico will move northward and shove moisture up our way after being caught in the strengthening "Westerlies". Once in a while, this situation can cause copious rains over the SW U.S. and severe flooding. Also, Sept. tends to be the most active month for hurricanes in the Atlantic and they, too, can have some effect on our weather. So be watchful and ready.

So if you love thunderstorms and watching nighttime lightning displays (like the one tonight over eastern Colorado and parts of Kansas), then soak them up now and enjoy each and every flash. In a few short weeks the season will be over and we'll have to wait for 2006.

And if you love snow, then now is the time to join the nearest "First Snowfall Contest" near you. Mountain snows have fallen already by this week in some recent years, and even at lower elevations in Wyoming and northern Colorado, early September snow can happen. Will it happen this year? Well, stay tuned—and then measure it!

Keep an eye on the CoCoRaHS Calendar

Picnics and Training sessions are being planned for several areas. Click on "Calendar" from the CoCoRaHS homepage (www.cocorahs.org) and see what's going on. RSVP to the individual listed with each event so that we know how many are coming. If there are no activities planned for your area but you are seeking training , let us know and we'll look into organizing something.

Recruiting Contest

A handful of CoCoRaHS volunteers now have scored several points in the first ever CoCoRaHS recruiting contest (i.e.: they have recruited a few new volunteers). There are still a few weeks to go, so do your best to encourage more folks to join this project. Our volunteers are our best recruiters, so do your best to fill those gaps on the CoCoRaHS maps. And remember, there are some great prizes to be won, too. Just make sure your new recruits mention you by name on their application. Messages like "found out from a friend" are just not good enough (and we've received a lot like that).

Goodnight,

Nolan Doesken