

The Catch

COCORAHS – SUMMER CAME QUICKLY

FORT COLLINS, CO — Monday, June 22, 2009

Greetings weather watchers!

Summer officially arrived both on the calendar and on the thermometer. From here on, the days will be getting shorter -- en rout in just 6 months to the beginning of winter. That may be a pleasant thought for those of you in the center of the country today where there are some really ugly temperature/humidity combinations showing up. The temperature in Kansas City was in the mid 90s this afternoon with the dew point in the upper 70s. That may be pleasing to the cornfields, but that's misery for animals and us humans -- and can even slow down the summer evening little league baseball players. Put a glass of ice water on the table and you'll think the glass must have a leak (condensation in action). I've seen a dew point reading of 82 degrees once -- and that was summertime in Des Moines, Iowa. It doesn't get much stickier than that even over the Gulf of Mexico.

Cloud Crisis

Well, there's really not a crises, but when you look at the satellite pictures today, most of the country is in the clear. This is the clearest it's been in weeks. Clouds are now taking a short break. The quick onset of heat and humidity follows on the heels of one of the stranger episodes of weather I've seen lately. I might not have noticed, but your excellent CoCoRaHS rainfall reports keep showing up each day on my computer (<http://www.cocorahs.org>) and I can't help but notice.

Beginning in late May, clouds and showers have been an almost daily event from the mountains of northern California across northern Nevada, Utah, southern Idaho and eastward along I-70 and I-80 to the western Great Plains. I clicked on "View Data" on the CoCoRaHS website and then selected "Rainy Days Report" and discovered that for Washoe County, NV

(that's Reno) from May 30th through June 21st there was widespread precipitation on 15 out of 23 days. There was only one day without a trace anywhere in the county. There was one stretch of 9 straight rainy days -- not bad for the near desert of Nevada. Up in Boise, ID (Ada County), the rains started a couple days later but have been even heavier and more persistent. Salt Lake City has seen widespread rainfall in 17 of the past 23 days with 3-week totals exceeding 4" at many locations (that's a lot for that part of the country). Here in Fort Collins, CO we've had clouds almost every day for a month. The rains have been great and the temperatures pleasant, but 3 major hailstorms in 9 days took the fun out of gardening for thousands of locals (our garden is still alive, but it's not pretty). Our horse pasture is amazing with grass tickling their bellies (last year we were lucky to have any grass at all). Missy, one of our mares, got poked in the eye by one of those tall stiff stems.

Farther east over northeast Colorado, southeast Wyoming and southern Nebraska, rainfall totals for the past month are in the 4-10" range. That band of wet continues across the Midwest and ends up in northern North Carolina where one of our volunteers near Blowing Rock, NC (close to Boone and Appalachian State University in Watauga County) has reported a whopping 15.37" in the past 30 days. Parts of Maryland have also had over 10" of rain in the past 30 days.

Meanwhile our observers in southern Nevada have had almost nothing to report. The clouds over eastern Texas and Louisiana have also been shriveling up these past few weeks. Hats off to those of you who persist in reporting even through the boring times with no rain. We are all very interested in drought just as much as we are heavy rain.

"When thunder roars --

-- Go Indoors." That is the wise message to all of us from our friends at the National Weather Service here during national Lightning Awareness Week. Dozens of CoCoRaHS volunteers have been struck or nipped by lightning and most of the rest of us have stories of scary close calls. Just last week the very first bolt of lightning from a little storm developing right overhead struck about 200 yards away while my wife and puppy were out weeding in the garden. They got home in a hurry before the next bolt struck. Play it safe and follow the advice. Too much of my life I've taken lightning lightly. Finally after some close calls (and a few more years of experience) I've learned. As a climatologist who knows a lot about statistics, I just don't want to be a lightning statistic -- and I don't want you to be one either.

There are a number of great websites for lightning information and safety suggestions. NOAA's Lightning Awareness Week webpage is a good place to start. <http://www.lightningsafety.noaa.gov/>

Big Rains, but few "Big Rains"

I am fascinated by rainfall -- little rain, big rain, hard rain, gentle rain -- any rain. The process whereby water evaporates over land and oceans, is carried by the winds for hundreds or thousands of miles -- sometimes as cloud droplets, but usually just as invisible vapor (water in the gaseous state), and then condenses and drops back to the ground has fascinated me ever since I was young. I recall an exhibit I saw when I was only 6 or 7 at the Field Museum in Chicago demonstrating the hydrological cycle in action. Some of you may recall that exhibit. My parents undoubtedly wondered what was going on in my little mind as I stood there entranced. Years later I know much more about the hydrologic cycle and how it moves both water and energy about the globe. But I am even more amazed how it all works.

CoCoRaHS is making it so easy for me to see one part of the hydrologic cycle in action -- the precipitation part. Each day is sort of like going to the museum all over again and seeing a new display. One of the things I notice (using the "Rainy Days" report or just sorting the "Daily Precip Report" is that somewhere in our country, there is heavy rain falling almost every day. Since my wife's birthday on April 25th (an arbitrary starting point), at least one of us has gotten doused by 4.00" or more of rain on 49 days out of the past 59. Move the threshold up to 7" and then there have been 15 days out of 59 where at least one of us had that much rain. But try 10", and that's only happened two days and only at a couple of small areas. No daily reports so far this year have exceeded 13".

That could change and I hope you're ready. The months with the heaviest local rainfall amounts tend to be June, July, August and September. The most vulnerable areas are near the Gulf Coast, but huge rains have fallen pretty much anywhere east of the crest of the Rocky Mountains. Summer is when the atmosphere carries the most water vapor (that's a function of temperature -- warmer temperature means more water vapor capacity). Summer and early autumn is also the time of year when the wind speeds high in the troposphere are the slowest of the year -- which means storms move slower. If you happen to be under a potent rainmaker, it may stay overhead longer. That can be a formula for flash floods. And then, of course, we have the hurricane season to contend with. Several times last year hurricanes and tropical storms brought huge amounts of rain to parts of the U.S. Some of you were in those paths. The forecasts

call for fewer tropical storms this year. Still, nearly every year some part of the country gets hit.

CoCoRaHS matters every day of the year. But CoCoRaHS may matter most when the rains fall the hardest. Your report could be the one that helps meteorologists get a warning out early enough to help others prepare and take shelter. Your reports really matter. Check out the website and learn how to use the "Intense Precipitation report" to send in timely information during storm situations.

Mouthful of Feathers

We're making some progress with the new puppy, Lily. She's learning reluctantly that no matter how cute she may be, we still don't like her muddy paws on our clean clothes (and there have been many "muddy paw" days this spring). But she hasn't learned to leave the chickens alone. What is it about chickens? We like to let them out in our yard to eat bugs, but every time we let them out, Lily ends up traumatizing them, flushing them back into the coop, and sometimes comes back with a mouthful of tail feathers. Nervous hens are not good egg layers, so production is way down. The fox hasn't helped the situation either. Earlier this month we took the dogs with us over to the garden. While we were gone and in broad daylight, a hungry fox dug a hole in the unusually soft, moist soil, slipped under the gate and harvested a hen. Darn, I hate it when that happens.

The CoCoRaHS questionnaire

It's still coming. We just haven't had time to finish it. It will be coming sometime this summer.

Rain gauge appreciation

I want to thank you all for your efforts. Even if you are unable to do regular rainfall reports, your interest in the topic is appreciated. I was so happy that on June 1 we broke our all time record with 8,624 daily reports. That's a lot of rain gauges.

If you are new to CoCoRaHS (Hawaii has just started, and people are beginning to sign up in New Hampshire and Connecticut), review our website, the training materials, and the e-mails you should have received

with instructions. Get set up and ready. We're glad to have you on our team.

Traveling rain gauges

My final thought, before supper, is that some of you live part of the year in one part of the country (i.e. northern states during the summer) and another part of the country the rest of the year (e.g. the South in the winter). You are welcome to take your rain gauge with you and have two or more seasonal stations. Just contact us at info@cocorahs.org with the location of your second residence, and we can sign you up.

Best summer wishes,

Nolan Doesken
Colorado State University

CoCoRaHS -- A few hours later

It was a dark and stormy night - - -

Just hit delete if you don't have time to read. But this evening's weather here was incredible. I took a short bike ride after sending the earlier message. Most of the sky was clear as it had been all day -- really clear. It was the clearest day in many weeks, in fact. Temperatures were in the 70s and the air had a nice moist feel to it and spring fragrance on the light easterly breeze. There was one cloud just east of town and another to the SW -- very high-based cumulus clouds -- beautiful but not threatening. Instead of dissipating as clouds here often do at sunset, these kept billowing. Before I got home, a few big raindrops splatted on the pavement. Strange, I thought -- those were really big raindrops. I went out to bring in the horses and the first bolt of lightning stuck -- only a mile away. I thought briefly about how awful it would be to be struck by lightning, especially just an hour after sending out the message "When thunder roars, go indoors". How ironic.

Within another 20 minutes it was lightning frequently -- no rain -- just lightning. Then came the squall of rain followed by hail pushed by strong winds from the NW. Within a few minutes, we lost sight of our neighbor's house through the spray. The hail on the roof was deafening. The yard

was covered by hail (again!) and the garden that had survived the previous storms was flat (again). Lightning flashed every second for close to 90 minutes. When it was all done, nearly 2" of rain had fallen here. It was probably even more. I didn't have time to take the funnel off my gauge, so most of the hailstones bounced out. Reports of over 3.00" of rain with 4" of hail on the level have trickled in this evening from areas a few miles west and north of here. We'll be anxious to see the reports and maps tomorrow. And all of this was on a day with a forecast of sunny skies with just a 10% chance of late day storms. We certainly got our money's worth from that 10%.

Hail on the level

I have a question for you. Have you ever been in a storm that dropped huge quantities of hail? I'm talking about the kind of storm that covered the ground and left it ice covered for a day or more. These are the kind of events where dense fog may form and linger immediately over the hail-covered ground. We know that thunderstorms will sometimes deposit a few inches of hail -- enough to make the ground totally white deposit? Is there an upper limit or could it be a foot -- or two feet?

Without counting the piles of hail that are deposited by flowing water or which accumulate at the edge or corner of a building or by the downspout, I would like to know the deepest accumulation of hail ON THE LEVEL that you have ever seen? If you have seen over 6" on the level and have photos to prove it, we'd like to see it. We'd like to know. We've heard people tell stories of a foot of hail, but we have no proof.

If you encounter one of those prolific hail producers, measure it, document it and then let us know. Don't let roofs and gutters cause you to exaggerate. Only measure where the hail fell directly and accumulated uniformly. If you take photos, make sure you put something of a known length in the picture-- like a ruler or even a shoe or a hand. Also take photos of the fog banks that form when warm moist winds blow over deep piles of hail. And for bonus points, measure the water content of that ice. There are several occasions of roofs collapsing under the weight of hail. But how much did it weight? That requires measurements are wise estimates. Engineers have to figure out how to design for things like this.

Quiet now

The storm has passed. Some distant lightning still flickers, but the sky is now dotted with stars. My June rainfall total stands at 5.76" -- that's a lot for here. There will be more muddy paws tomorrow, and a sloppy horse corral again. The grass will stay green until the 4th of July. And as for the garden -- we'll assess damages in the morning.

Good night,
Nolan