

The Catch

COCORAHS - MUCH HAPPENING

FORT COLLINS, CO — Thursday, May 27, 2010

Greetings and good evening to all CoCoRaHS participants, friends and family:

It hasn't been long since I last wrote, but much has happened, is happening and will be happening. There are many topics to cover this evening, so you may need to come back to this later when you have more time.

Green Again

We awoke sometime after midnight this morning (Wednesday) to the not-that-common sound of nighttime drumming rain and thunder. We get our share of thunder here, but it's usually done for the day by sunset. It's always a surprise to get wakened out of a sound sleep. I guessed that we might have gotten a tenth of an inch of rain or a bit more, but when I checked the gauges this AM there was 0.53" in both gauges and a few small dents on my hail pad. With the cool humid day today, this will be enough to keep our grass thick and green for at least another week -- without having to turn on the sprinklers. The pasture continues to provide plenty of good grass for the horses. This almost guarantees that our irrigation water will hold out through the summer. This is good -- very good news.

Lovely Late Lilacs

Today may have been the day -- 2010 maximum lilac bloom. Our lilacs are blooming later than usual by a good two weeks this year but they are putting on a grand show. The recent moist air helped bring out the sweet fragrance even more -- just about intoxicating. Usually soon after

the lilacs peak, then come the first mosquitoes. I haven't seen one yet, but that will change soon.

If you love watching the seasonal cycles of plants, bugs, birds and/or animals, you may be interested in helping the National Phenology Network. <http://www.usanpn.org/>. NPN would love to have CoCoRaHS observers in each state help their important project.

Convection

Yes, we've nearly completed the transition from winter to summer (although some of you in CA, NV, OR, ID, UT, MT and WY who had snow the past few days might argue). Now and for the next several months "convection" will be the main name in the weather game. With the sun nearly overhead at this time of year, it rapidly warms the ground each day and also evaporates water. As sunlight is absorbed at the surface, it heats the air in direct contact with the ground. This air, if warmer than the surroundings, will rise buoyantly just like a hot air balloon rises. As long as the air is warmer (lighter) than the air around it, it will continue to rise. If there is sufficient moisture and buoyancy, cumulus clouds will form and sometimes continue to grow explosively to form towering cumulus and then cumulonimbus (thunderheads). That is what happened here in northern Colorado today, and it was both beautiful and a bit troublesome. For that reason, weather forecasters will carefully examine lapse rates (how rapidly temperatures cool as you go up in the atmosphere) and moisture profiles (how much water is in the atmosphere and at what levels) and will use this information to help predict where and when summer thunderstorms will erupt and how large and severe those storms are likely to get. Just because it may be hot and humid near the ground doesn't mean that thunderstorms are sure to develop. The atmosphere must be favorable aloft with enough moisture near the surface and cold enough above. Forecasters rely on "soundings" from weather balloons sent up twice each day from over 100 locations across the country and many more around the world to give them the data they need to predict convection. So enjoy the cumulus, towering cumulus, cumulus congestus and the grand daddy of them all -- the cumulonimbus (thunderhead). Many of us will be watching and marveling at these giant clouds that reach several miles into the sky.

Insult to Injury -- a double header

With convection, comes the risk of severe weather. Today down near Denver International Airport (where my wife flew out of this AM) there was flash flooding, hail and even tornadoes. For eastern Colorado we are now into the peak of our severe weather season. Last year I had hail on seven different days during the summer. Today, not far from here near Wellington a CoCoRaHS observer took a direct hit from a powerful hail storm. Only a few hours later, another storm hit the exact same location. I couldn't help but notice and feel badly when I read their comments in their hail report this afternoon. I quote:

"Notes: No hail pad for this event. The hail pad that was out for the day was so shredded by the last pass through that we had brought it in. I have used the 3 hails pads I had on hand. I can't tell what damage was done because of the damage done earlier in the afternoon."

Del Rio Deluge

Our storms in Colorado today were nothing compared to what Del Rio, TX (Val Verde, County) dealt with earlier this week. Once again, a CoCoRaHS observer found his rain gauge filled to the top. While it is unlikely that it will happen to your gauge, it is very likely that in any given year, a few of us will experience a storm that drops at least 10" of rain. If it happens, be ready but be wise. That's a huge rain and it will cause trouble. We're preparing a new "Message of the Day" to provide tips on how to measure huge rains accurately and without spilling.

Baca County Rumble

If you've read "The Worst Hard Time" (a great book about the Dust Bowl on the Great Plains) then you've read about Baca County, Colorado. It is in extreme southeast Colorado and borders the Oklahoma panhandle. It may have been the last of Colorado's 64 counties that I ever visited. But it's one of my favorites. This week their county seat, Springfield, was pounded by 2-3" diameter hail stones. One of the locals who reported the hail is named "Storm" -- quite appropriate. I spoke there at the annual meeting of the Baca County Conservation District a few years ago and I will never forget it. I asked "How many of you have ever crawled down under your tractor to get out of a hail storm? About half of the farmers in the room raised their hands. There were so many stories to

tell and listen to that I really didn't need to give my talk. It was great. That is not an easy place to be a farmer, that's for sure . . . but if you survive you end up with great stories.

One gauge or two?

If you only have one rain gauge to check, then you're pretty sure your gauge is always right. But what if you have more than one gauge? Then you're not sure. I have gotten in the habit of having two CoCoRaHS rain gauges outside most of the time. I compare rainfall from two different places in my yard. The readings are usually very close, but the gauge mounted in a more protected location closer to the ground usually has .01 or 0.02" more than the gauge that's up on top of the post.

Several CoCoRaHS volunteers keep more than one gauge. Today a volunteers from near Rochester, MN discovered a large discrepancy between his two gauges. He has one gauge with the funnel off and one with the funnel and inner cylinder in place. Here is his report. One gauge read 2.68" (with the funnel and inner cylinder in place -- normal operations) while the second gauge with no funnel or inner tube measured 3.04"

Station Number: MN-OL-1 Station Name: Rochester 3.9 ESE Observation Date 5/26/2010 7:00 AM Submitted 5/26/2010 10:37 AM Total Precip Amount 3.04 inches

Notes Intense Rain. duration of about 1 hour evidence of small hail(shredded leaves)Two COCORAHS gauges one with funnel and inner tube one without 2 ft apart gauge with funnel recorded 2.68 inches Some tree damage due to wind.

So which was right? Most likely the wind-driven rain and hail partially splashed and bounced out of the funnel while the gauge without a funnel caught more of the storm and was probably the more correct of the two readings in this situation. At other times, the gauge with the funnel will provide a better estimate since water evaporates more quickly when there is no funnel in place. It just goes to show, that even our "accurate" gauges are sometimes only approximations.

California -- is the rainy season finally over?

For much of California and the Southwest, this is usually the start of their annual dry season. In central and southern CA it's not unusual now to go several months with little or no rain during the summer months. But what has it been doing recently? It has still been raining -- at least down as far south as San Jose where there have been between 65 and 80 days with rain since last autumn. The El Nino this winter has been kind to CA and has largely ended the severe drought that had gripped the area. <http://www.drought.gov> The drought over the northern Rockies has also loosened its grip a bit in recent weeks.

Drought Impacts

At this point, the most serious drought conditions in the US seems to be gripping parts of Hawaii and northeastern Wisconsin and the western portion of the Upper Peninsula of Michigan. While we have few observers there, we have seen some very helpful and descriptive "Drought Impact Reports" Thanks very much for taking the time to enter those reports. Impacts typically worsen quickly as we move into the heat and high evaporation months of summer. So let's all hope for rain for this area. If you are experiencing impacts from drought or emerging dry conditions, please let us know by filling out the "Drought Impacts Reports"

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

Tennessee Storms in historical perspective

The Tennessee floods of early May 2010 are history now, but they won't be quickly forgotten. One of our CoCoRaHS coordinators found this link today and shared it with us. Take a look if you're interested as this provides an excellent historic perspective. It also demonstrates very well how important CoCoRaHS rainfall measurements can and will be.

<http://www.srh.noaa.gov/ohx/?n=may2010epicfloodevent>

Commemoration -- 75th Anniversary of a huge flood

Folks that live in eastern Colorado, northern Kansas and extreme southern Nebraska have likely heard of and may have family stories about the great Republican River flood of May 30-31, 1935. The 75th

anniversary of this event is weekend. The Goodland, KS office of the National Weather Service has assembled documentation and stories. Take a look at this website if you have the time and interest.

<http://www.crh.noaa.gov/gld/?n=1935flood>

The Goodland NWS forecast office staff are participating in a number of commemorative events in KS, NE and CO. I will be headed out to Burlington, CO next Thursday (June 3) for a 5:30 PM program at the Old Town Museum, 420 S. 14th St. Hopefully a few CoCoRaHS volunteers will be there.

As the State Climatologist for Colorado, this event and commemoration have special meaning and importance for me. First of all, this storm 75 years ago was likely the heaviest rain ever observed in Colorado. The storm center, as is so often the case, missed the official rain gauges that were out back then. However, results from a "bucket survey" conducted in the days after the flood suggested that rainfall totals exceeded 18" on the night of May 30, 1935 and may have exceeded 24".

This is amazing in all ways considering that the area is nearly semiarid. But what makes it even stranger is the fact it occurred right after the worst year of the Dustbowl drought. Secondly, my wife's mother was right in the middle of this. She's not with us to tell the stories any more, but Mabel was only 13 when that storm hit. She recalled for us how the family stayed up that night catching water in various buckets and pots that was leaking through the old homestead roof. But then came the roar of the river and the recollection of watching a neighbor float by on the roof of her house. The next day as the flood water subsided, she witnessed jumbled rolls of barbed wire, tangled rattlesnakes and dead cattle -- dreadful..

9228 + 202

We did it! There was a bit of a lag as late reports were filed, but now that the dust has settled we reached our goal of over 9000 precipitation reports. On May 11, 9228 CoCoRaHS daily precipitation reports were submitted and an additional 202 Multiday precipitation reports for a total of 9430 -- an all time record. Thanks very much. Good job. In a few months we'll try again and shoot for 10,000.

Filling the gaps

If you see places on the CoCoRaHS maps where no one is measuring and reporting precipitation, but someone may live there who you know, please encourage them to join and help fill the gaps. Each week more gaps are filled. We now have only a few hundred counties in the U.S. with no volunteers. Here in Fort Collins we are getting very close to the goal of at least one station per square mile. As our rainfall patterns showed today (May 26th) that is an ideal network for tracking thunderstorm rains. Since we have parts of the country like Nevada, we will always have some gaps, but let's do our best. Also, if you know of organizations that may want to support and sponsor the CoCoRaHS project, please let me know.

Best wishes to all, and may you enjoy your share of soaking rains, green grass and no floods or drought.

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