The Catch

NOLAN DOESKEN'S MONTHLY COCORAHS E-MAIL MESSAGE

CoCoRaHS -- More Than Meets the Eye

Fort Collins, Colorado -- April 27th, 2016

Greetings, rain gaugers, friends and family!

The rooster is crowing and the sun is about to rise. It's a chilly morning here in northern Colorado. Our 12 hours of intermittent lightning and thunder here Monday night, and an early morning hail storm for parts of town yesterday, then turned to afternoon snow showers and a hard freeze this morning. I hope all our blooming fruit trees comes through without too much damage. And winter is not over yet. Our nearby mountains could pile up a lot more snow later this week. But we never (OK, rarely) complain, as spring storms are the best when it comes to bolstering our water supplies for the coming summer.

Why we call our e-mail update "The Catch"?

No -- it's not just supposed to "catch" your attention -- but hopefully it does. "The Catch" has meteorological significance specific to rain gauges. "The Catch" refers to the quantity of water captured by a rain gauge.

It has long been known (since the 1800s) that what

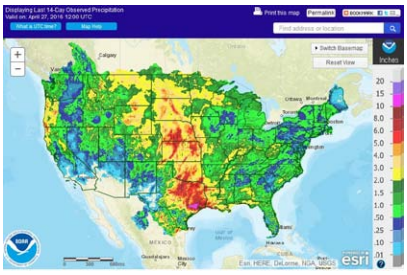
collects in a rain gauge may, in some cases, not equal the amount of precipitation that actually fell. The amount that a rain gauge catches is a function of several variables such as the design and shape of the gauge, its height above ground, the obstacles nearby, wind speed, rainfall intensity, rain drop size, whether the precipitation fell as rain, hail or snow, evaporation from the gauge prior to measurement and the list goes on and on. In most cases, the "Catch" is equal to or less than the true depth of precipitation.

Our goal in CoCoRaHS is to use an affordable gauge identical across the entire network that has a great track record for catching most or all of the precipitation that falls -- and registering it accurately. There are situations such as wind-driven snow, where it is extremely difficult to obtain an accurate and representative catch, which is why we encourage taking core samples of snow on the ground in these situations. But very strong winds during a thunderstorm, for example, can reduce the amount of water that lands in a rain gauge as the drops (especially smaller ones) are blown around or up and over the gauge. The effects of obstacles are also greatest when precipitation is accompanied by wind. Very large rain drops may also splash from the funnel of the gauge and a small fraction may splash up over the rim of the funnel and escape our measurement.

Hail is another matter. Hard hail easily bounces out of a rain gauge funnel or may even fill the funnel to overflowing. But if you leave the funnel out (which improves the catch from hail and large-drop rain, then you need to measure shortly after the precipitation ceases to avoid losses to evaporation.

So you see, there is more to "The Catch" than meets the eye.

Recent Snow and Extreme Rains



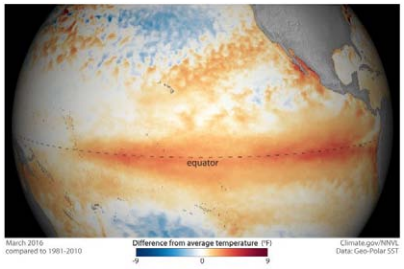
It has only been two weeks since our last e-mail message, and already some major weather has occurred. Some of us have been enjoying dry spring weather including many eastern states. Dry weather is nice -- but only to a point. The latest U.S. Drought Monitor will be showing more evidence of dryness when it gets updated Thursday AM.

Here in Colorado we "celebrated" the 95th anniversary of our heaviest one-day snowfall (76" in 24 hours back on April 14-15, 1921) with a major spring storm of our own with upwards of 10-20" of wet tree-breaking snow in parts of Denver, with as much as 50 inches in three days in the foothills and mountains west of the city.

A few days later, associated with the same weather pattern, areas near Houston, TX were clobbered by 10-16 inches of rain, mostly in 12-20 hours. Yesterday it was a line of

severe weather raking the central plains -- and heavy snow in Wyoming.
So whether you're in the dry parts of the country, or the stormy areas, your rain gauge reports tell the ongoing story. Thank you SO MUCH!

Looking Ahead to May



Last year, as a very strong El Niño was ramping up in the Pacific, the U.S. experienced widespread very wet weather from the eastern slope of the Sierras, across the Rockies and much of the plains. Here in Colorado we had areas from Colorado Springs and northeast with over 10" of rain for the month. This year, The El Niño in the Pacific is rapidly dissipating now -- just as forecast. As it does, the National Weather Service Climate Prediction Center anticipates better than equal chances for a wet May from the Gulf Coast up into Colorado, Wyoming and Utah. Forecasting a month ahead is not easy, so keep measuring and we'll see what happens.

A Warm Welcome to CoCoRaHS Newcomers

Our annual volunteer recruiting campaign in March netted over 1200 new CoCoRaHS sign ups. Welcome all of you! If you haven't gotten started yet, this would be a great time. If you have any questions or need any help getting started, please contact your local CoCoRaHS volunteer coordinator or write us at info@cocorahs.org. Remember, we have both written and video instructions that cover almost every situation you'll encounter.

Some Interesting Rain Gauge Statistics

Here in the U.S. we use state and county abbreviations to index all of our CoCoRaHS stations. Every one of us has a station number that looks like this:

XX-XXx-##

The first two characters is the two letter abbreviation for our state, then then next letters (two for most states but three in Texas) are the county abbreviations - which we had to make up. Most states have not standardized this. The numbers at the end are simply the sequence number issued in the order of sign up. So the first station to join CoCoRaHS in any county is number "1". For example, in California, the first station to sign up in Calaveras County was number CA-CV-1. Unfortunately that station is not reporting, but CA-CV-6 and CA-CV-8 still are.
There are currently 3,140 counties here in the U.S. Of those, 2,993 counties have had at least one volunteer sign up. So we still have 147 counties where we have never had a volunteer.
Of course, not everyone who signs up for CoCoRaHS reports. 232 counties have never had a single rain gauge report from CoCoRaHS. Some of those counties do have a current National Weather Service Cooperative Observer.
In the past 12 months there have been 539 counties with no CoCoRaHS precipitation reports and an additional 559 counties where only one volunteer is reporting from that

county. So that adds up to about 1/3 of the county with sparse representation.
Counties that really look great on the CoCoRaHS maps are those that have at least 8 active volunteers reporting. There are currently 743 counties with at least 8 active volunteers. Hurrah!! That's about 1/4 of the country!
Which County has the most volunteers? Not surprisingly it is our home county here in northern Colorado -- Larimer. Earlier this month our 1,101st volunteer signed up. Are they all reporting? No, of course not. Since we started here in 1998, many have passed on, moved on, or never gotten started at all. But 237 of us are still reporting just in one county alone.
Interestingly, we found one sparsely populated county in SE Colorado with over 20 active volunteers a few years back (less now). This added up to over 2% of the entire population of the county participating in CoCoRaHS. That would jump to over 5% if we included all family members in each participating household. Imagine if we could accomplish that for the whole country -- millions!!
We celebrate every time we see a new #1 and this week we've done a lot of celebrating. Two counties in Kentucky had their first ever CoCoRaHS volunteer.
We know precipitation varies a great deal. Estimating rainfall where we have no rain gauges is tough, but yet every day, you'll see nationwide maps that make it look like we know for sure. Well, we don't, but you can help. Chances are that among all of us, we probably know someone in in every blank county on the CoCoRaHS map. Take a look at the map. Then call your uncle, or cousin, or former classmate, or whoever. See if we can fill these remaining gaps! Thanks!

Upcoming Climate Webinar-- The Weather And Climate of the Plains!

Last Thursday we had a fantastic webinar on the weather and climate of the Midwest. If you missed it, here's a link where you can view it at your leisure.
Coming up next on Thursday May 5, we'll be learning about the most variable and extreme region of the country -- the High Plains. Natalie Umphlett, interim direct of the High Plains Regional Climate Center will be our guest expert. Please join us by clicking here to register.

Farm story -- The Attack of the Voles

As winter has turned to spring and we've been out to walk most of our place we made an interesting discovery. There is a fenced area that doesn't get grazed by our horses much. There we found voles, voles and more voles -- plump, happy, bold voles enjoying a season of massive successful reproduction. There were not tens of voles, not hundreds, but likely a few thousand. Much to our dismay we found several trees and a bunch of bushes that are dead or dying, with nearly all the bark and soft wood near the ground eaten (girdled). How did this happen?
There have always been voles around here-- especially in the taller vegetation near our irrigation ditch. We haven't had as many predators these past few years and that probably contributed. But the tall grass that's been growing undisturbed for at least two years allowed the voles to build an intricate system of tunnels. Then, this winter we had several months of snow cover that insulated them thoroughly and protected them from

the cold, the cats, and the great horned owls that frequent our area. We heard at least two owls every night all winter, but the voles were safe. So safe, in fact, that they had babies, more babies and more babies. As the snow retreated, we noticed our barn cats were getting plumper and rarely eating from their bowl of cat food. We wondered why they were wandering out across the pasture each day and just sitting in the tall grass. Now we know.

We have now pruned the bushes, cut down more trees, and mowed the tall grass. Not sure where all the voles went but we can now walk across the field without the ground moving under our feet. The cats are still busy, but not quite as fat. I think we're getting back to normal.

I hope you all have a good spring. I realize many of us are gardeners. It would be best to get back to the garden and quit wasting time reading e-mails. :)

Thanks as always, and best wishes.

Nolan Doesken and the CoCoRaHS team
NOAA's Weather Ready Nation Ambassador Program
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