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NOLAN DOESKEN'S MONTHLY COCORAHS E-MAIL MESSAGE

CoCoRaHS -- Special Edition - Get Ready for Hail!

Fort Collins, Colorado -- April 13th, 2016



Seeing the pictures from Texas earlier this week, and noting the weather forecast for eastern Colorado for Friday, reminds me that it is seriously hail season.

Many of us are [trained spotters for the National Weather Service](#) and know how, where and when to report large hail. Others of us have learned to use the [mPING app](#) to submit reports of hail and other forms of precipitation. That's all good, but let me now make my appeal for CoCoRaHS. First and foremost, please

know that you don't need a 'hail pad' in order to report hail. Fill out the report as best you can, and leave items blank if you don't know. You can find the hail report by looking to the left hand menu of your data entry page, or [here is a direct link](#) (must be logged in). [You can also print them out here.](#)

Even before our flash flood here in Fort Collins back in 1997 - which motivated the start of the CoCoRaHS network - we already had an idea. We knew that accurate information about hail was painfully lacking. As a climatologist in Colorado, we were accustomed to hail, but had difficulty answering questions about how often hail of various sizes occurred and what fraction of hail storms produced crop and/or property damage. We just didn't have good data. And then as the new NWS radar systems were being deployed in the 1990s, they desperately needed more data to help improve their radar interpretation algorithms to help forecasters determine what storms were the likely hail producers and which weren't.

Most hail reports up to that time simply consisted of one number -- the maximum stone diameter. That maximum diameter was traditionally needed to confirm if a NWS "severe thunderstorm warning" had been verified or not. So, if a storm produced mostly tiny soft

hail but happened to drop a couple of ping pong ball sized hail stones, that would be what was reported. It just didn't tell us enough. To really understand and learn more about hail, we needed to know more: The time hail began and ended, whether it was intermittent or continuous, what the approximate number and size distribution of stones were per unit area (that's when we started using Styrofoam hail pads), whether the hail stones were hard or soft, white or clear, falling straight down or wind driven at an angle, etc. etc. And we also really wanted to know how many storms produced enough hail to cover the ground white. That's why we also have a place on our hail report forms to report the depth of hail accumulated on the ground on the level (not just in drifts, although that's interesting too). We hear stories of deep hail, but it's really helpful to get some real data.

Back in the summer of 1997, we had a local high school student experimenting with hail pads, and working to see if a volunteer hail network was feasible. We weren't even thinking rain gauges then. But another high school student (who happened to be my nephew) said "We'll get bored waiting for hail. Give us more to do and maybe we'll stick with it". Then came the flood, and then came CoCoRaHS -- and many years later here we are. But the fact remains that detailed local reports of hail are still really, really helpful. It's good when you mention hail in your comments of your daily precipitation report, but it's GREAT when you send in an actual hail report. Then we can really do some valuable research! It gets even better if you have a 'hail pad'. Just try the "Search Hail Reports" under our "View Data" menu and you'll get the idea. [Here is a direct link](#). In a matter of seconds I can see that we've had nearly 600 hail reports so far this year -- with Texas taking the brunt of the largest stones so far.

Thank you all very much for considering helping out with hail reports. If you have any questions about measurements and reporting, please refer to our [online training resources](#), or watch our ['Measuring Hail' animation](#) on YouTube.

If you're here in Colorado, I also wanted to draw your attention to a special research project that has just gotten started and will continue all summer. The University of Colorado (Boulder), in collaboration with the National Weather Service is investigating the traits of thunderstorms that drop deep accumulations of hail -- sometimes 2", sometimes 4" and possibly even 8-12" of hail - on the level - all falling within less than an hour. Wow!

If you're at home when deep hail hits, please use CoCoRaHS to report the details of the storm. They will be accessing the hail reports from CoCoRaHS. But if you're on the road (or even a visitor driving through) you can send reports directly to the NWS Boulder office through [Facebook](#), [Twitter](#), or [e-mail](#) to send in reports of deep accumulations of hail. Remember, it's not the drifts we're looking for. It's the depth of hail "on the level". Also, if you have a spare outer rain gauge cylinder, we also would like to know how much precipitation is falling from those amazing downpours. 25% of more of the water content from hard hail stones may bounce out of our rain gauge funnels, but if you just set out a spare outer cylinder, you can catch most of the hail and get a better measure of water content.

I know hail research isn't for everyone, but if it gets your attention, this is great chance to help. Meanwhile, some of us will also be measuring snow this weekend. Winter's not over yet.

Sincerely,

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

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