Northern New England

AUTUMN 2018

Changes to Our CoCoRaHS Team

We hope this newsletter finds all of you well! Before we move on to other topics, our CoCoRaHS team has undergone some changes since our last newsletter was published. Stacie Hanes has moved on to other responsibilities here at the office, but Tom Hawley is still here and Nikki Becker will help out behind the scenes. We will introduce two new team members: Derek Schroeter and William Watson.

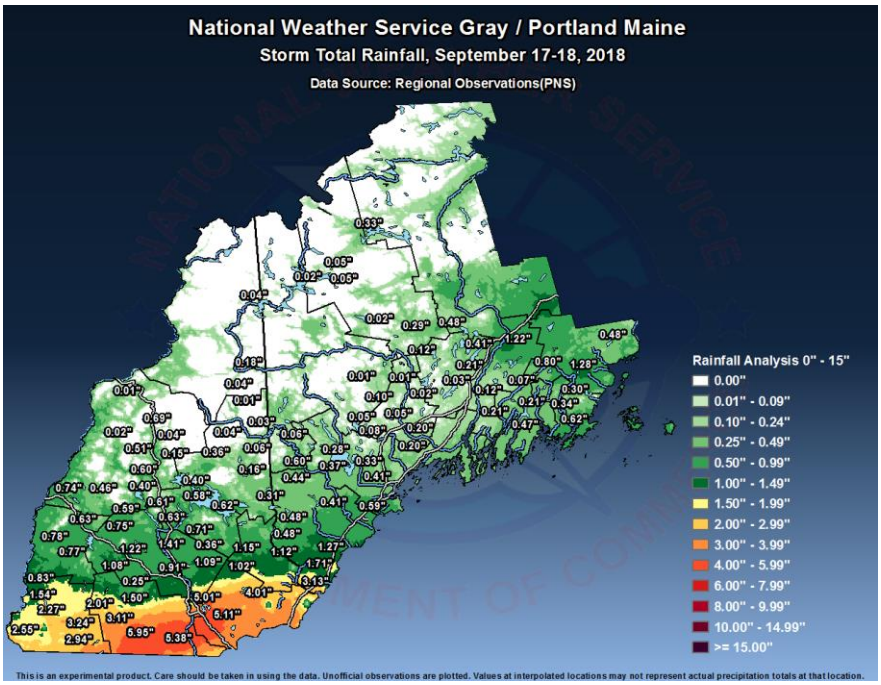
Derek grew up in Saco, Maine, and through his passion for skiing he quickly became dedicated to monitoring forecasts for the next potential snowstorm. Knowing that he wanted to study the weather but also wanting to be close to great skiing, Derek went to college at the University of Vermont (UVM) where he earned a Bachelor's Degree in Geography. Upon graduating, Derek did what a lot UVM graduates did and moved west to live and work at a ski resort. He lived and worked at Squaw Valley in North Lake Tahoe, California, for five years where he learned how teleconnections such as El Niño/La Niña can influence winter weather patterns that can bring a lot or a little in terms of snowstorms to certain regions. Derek went on to Graduate School at the University of Delaware where he earned a Master's Degree studying teleconnections and winter weather patterns. He continued on at the University of Delaware to pursue a Ph.D. in Climatology where he is now a Ph.D. candidate studying the impacts of Arctic Sea Ice decline on winter weather patterns. Before joining the Gray, ME NWS office in April 2018, Derek worked as a Meteorology Pathways

Student at the San Diego, CA NWS office for almost two years. Derek is very excited to be back in his home state and looks forward to all the forecast challenges that winter weather brings.

William grew up in Louisiana where hurricanes and summer afternoon thunderstorms fostered an interest in weather at an early age. While he earned a bachelor's degree in civil engineering from Louisiana Tech University and eventually became a licensed engineer, his interest in weather never left. He finally decided to apply to Florida State University's meteorology program and was accepted, prompting a move to Tallahassee. William completed his Master's Degree in Meteorology in 2016 and then worked at the Florida Division of Emergency Management as one of its three state meteorologists, providing impact-based weather forecasts for state and local officials throughout Florida. He joined the Gray office in April 2018 and is enjoying his new career in the National Weather Service. William is married to his lovely and talented wife, Lauren, and they have a 2 year-old son, Peter.

Remnants of Florence Bring Heavy Rainfall to Our Region

As many of you are aware, Hurricane Florence caused extreme flooding and considerable damage in much of North Carolina and eastern South Carolina in mid-September. The flooding was of course caused by the heavy rainfall, in excess of 30 inches in some locations; in fact, the highest official total rainfall was 35.93 inches, collected by a CoCoRaHS observer in North Carolina.



The remnants of Florence brought some heavy rainfall to our area as well on September 17 and 18. The area of heavy rainfall was confined to southern New Hampshire, where we received reports of between 5 and 6 inches of storm-total rainfall. Much of that rainfall occurred in just a few hours, prompting us to issue a Flash Flood Warning for Cheshire, Hillsborough, and Rockingham counties.

In Milford, several streets were flooded, a culvert was washed out, and Ox Brook briefly rose above its banks. In Derry, a few people were rescued by boat when their cars suddenly became flooded while on the road. Our Public Information Statement with storm-total rainfall issued after the event was full of CoCoRaHS observations, so thank you for those and your continued contributions!

Finally, you may be wondering how to deal with a very heavy rainfall event. Remember that the inner cylinder only holds **1 inch** of liquid precipitation, which will then overflow into the outer cylinder that can hold **10 inches**. So the total capacity of your gauge is **11 inches**. Obviously, it's highly unlikely that you receive more than eleven inches in 24 hours (that would be some event!)…but let's say you check your gauge before going to bed and it's empty, and you awake the next morning and it's overflowing. In this very rare case, do two things: report your 11 inches of rainfall, since you know you received at least that much; and then write in the comments that the gauge was overflowing. This will at least give an indication that your real total is more than 11 inches, and this information is useful even if the real total is never known.

Winter Weather Training/Reminders

Some of you probably do not want to be reminded…but winter will be here before we know it. That means that there will be lots of snow to be measured! Here is a brief review of some of the more essential aspects of winter weather CoCoRaHS observations.

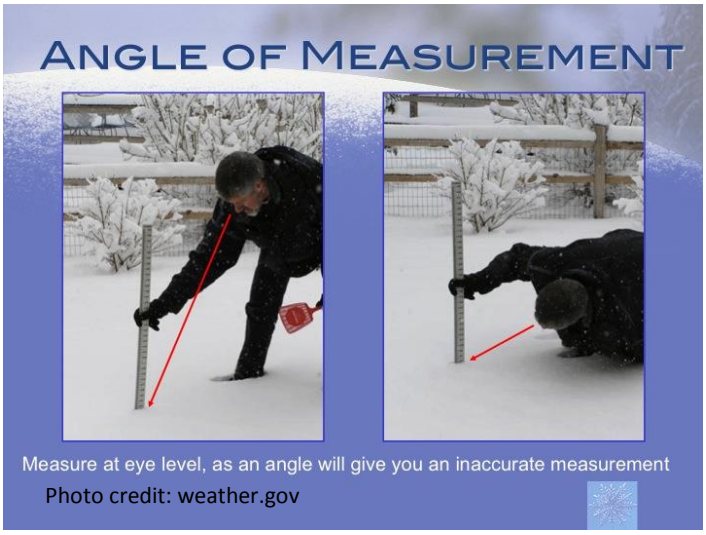
First, in addition to your rain gauge, you will need a ruler or yardstick (preferably one that measures in tenths of an inch); a snow board (painted white); and some warm water to measure any snow.

Second, there are four ways in which snow is measured:

1) Measure the liquid water content of the snow in your gauge.
2) Measure the snow, both the 24 hour accumulation and the existing snow depth.
3) Measure the accumulated snow depth.
4) Take a snow core and measure its liquid water content.

Let's start with measuring the liquid water content. Be sure that the inner cylinder and funnel has been removed from the gauge, letting the snow collect in the large outer cylinder. You can then bring your gauge inside and wait for the snow to melt. Alternatively, if you need to measure immediately, pour the warm water into the cylinder to melt the snow. Be sure to note how much water you use to melt the snow! Once the snow is melted, you can then measure the total liquid water using the inner cylinder. Finally, subtract the amount of water you added to melt the snow, and the result is your liquid water content that you can report in your observation (to the nearest hundredth of an inch, i.e. 0.28).

Now let's discuss the measurement of snowfall accumulation. New snowfall accumulation is the amount of fresh snow that fell in the previous 24 hours. Be sure to place your snow board in a location that is level and where snow can accumulate uniformly, and use your ruler or yardstick (to the nearest tenth of an inch, i.e. 2.8 inches) to measure the new snow on the board. Then clear the board and place it on top of the snow. The best practice is to measure as soon as the snowfall stops/changes to rain or sleet, even if more snowfall is expected within the 24-hour period. If you do not have a snow board, you can use any level, firm surface, such as a picnic table or your cold vehicle. If you measure on the grass, just be sure to remember that your ruler may overestimate when it reaches all the way to the ground during your measurement. If the snow is blowing, the best practice is to take multiple measurements in different locations and then take an average of those measurements. What if you saw snow, even just a single flake, but there was no accumulation? That would be reported as a trace, "T".



The next topic for review is measuring the total depth of snow on the ground. This measurement is taken at 7:00am, or at the same time as your regular daily precipitation observation. Use your ruler or yardstick to measure the total amount of snow on the ground, old and/or new, and report the measurement to the nearest half inch. Remember, this measurement should be reported even on days when no new snow has fallen. Similar to the drifting snow situation, you can take several measurements and take an average of them. However, if there is less than a half inch of snow on the ground at any location, and the majority of your measuring location is bare ground, then the depth would be reported as a trace, "T".

Finally, you can take a snow core and measure its liquid water content. The basic premise is to take your large outer cylinder and "cut a biscuit" through the snow in a representative location followed by melting it and recording the liquid water content with the same procedure

mentioned above. If you would like more information on how to take a snow core, please do not hesitate to contact us.

If you would like more information on taking winter weather CoCoRaHS observations, follow the links below:
https://www.cocorahs.org/Content.aspx?page=MeasureSnow
https://www.cocorahs.org/Media/Docs/Snow_onepage.pdf
https://www.cocorahs.org/media/video/measuringsnow/default.aspx

A quick note about data QC…we look at every observation that all of you report every day as a measure of quality control. The data you provide is archived, so we take this extra step to ensure that your observations look reasonably correct. If you receive an email from one of us asking about your observation, please understand that we are not calling you out! Mistakes happen, like entering 0.10 instead of 0.01 or something similar, and we only want to ensure that your data is correct. Also, if you have not reported in a few days, please be sure to report your next observation as a multiday observation. Even if you are reasonably sure when any precipitation occurred, the best practice is to provide a multiday observation when you have not reported the previous day.

To wrap this up…a very big thanks to all of you for your contributions!

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