Messages of the Day
August 2015

Monday, August 3, 2015

How's your garden growing this year? Check out the CoCoRaHS "Climate Resources Guide for Master Gardeners"!

CoCoRaHS has an on-line guide for gardeners out there on our master gardeners: **Climate Resources for Master Gardeners Page**. The HTML version of this **"Guide"**, introduces elements of large scale and local climate important to gardeners. An overview of climate patterns and differences are shown. Links to local climate information are provided. Topics include: Climate & Gardening, Sunshine, Temperature, Humidity and Dew Point, Precipitation, Wind, Evapotranspiration, Climate Resources, Climate Change and CoCoRaHS.

We hope that you'll take a look at it, use it for your own gardening needs and pass along the URL link to other gardeners you know who may be interested in gaining a better understanding of climate and how climate might effect their local gardening efforts . . . it won't be long now (perhaps you already have) until it's time to harvest those juicy beefsteak tomatoes and fresh sweet corn!

Thursday, August 6, 2015

The First Week of August . . . It's Gauge Clean-up Time!

It's early August and after many weeks of dust, rain and other objects falling from the sky, we bet that your rain gauge inner-cylinder is starting to look a little grungy these days. It's that time of year! For most of us dirt will eventually build up on the bottom of your CoCoRaHS rain gauge inner-cylinder. In humid climates, algae growth can also be a bother.

If you want to keep your gauge clean and looking like new, put some warm water with a little gentle liquid hand soap in the tube and let it soak for a few minutes. Then twist a thin soft towel and spin it into the cylinder until it reaches the bottom. This will wipe out most of the dirt. It is not recommended to use a firm bottle brush to clean the gauge, nor is using your automatic dishwasher (This will gradually scuff and haze the inside of the gauge).

Another method is to take a newspaper, roll it to make a tight cylinder, and then rotate the paper on the inside of the tube all the way to the bottom. It will usually clean out the dirt.

A clean inner-tube will keep your raindrops happy and make the gauge easier to read.

Monday, August 10, 2015

Calling All Educators! Join the "CoCoRaHS School Network"!

With the beginning of school right around the corner, we want to make our educators out there aware of CoCoRaHS activities for K-12 teachers.

With over 500 educators across the country who are already involved, the CoCoRaHS Education Team is continuing to develop and pilot new materials and activities. Students really enjoy collecting data that are actually used by scientists, and teachers are finding that participating with CoCoRaHS meets many of their required standards for science, math and more! We invite all educators, teachers, students, schools, and home schools to join CoCoRaHS! If you or someone you know is interested in becoming part of the "CoCoRaHS School Network", or for more information, please e-mail: education@cocorahs.org

Thursday, August 13, 2015

IT"S BACK FROM VACATION — The CoCoRaHS WxTalk Webinar! September 2015:
The history and uses of volunteer weather observations in the U.S.

The history of volunteer observing will kick off our autumn season of "WxTalk Webinars" on Thursday, September 17th. Join us as ***The history and uses of volunteer weather observations in the U.S.*** is presented by CoCoRaHS founder Nolan Doesken.

Space is limited to the first 500 registrants, so register today! We will notify the first 500 who register of their acceptance to the Webinar. Those who aren't able to attend will be able to watch this episode on-line the following day.

REGISTRATION INFO

Title: Webinar #40 - CoCoRaHS WxTalk: The history and uses of volunteer weather observations in the U.S.

Date: Thursday, September 17, 2015
Time: 1:00 PM Eastern, Noon Central, 11:00 AM Mountain, 10:00 AM Pacific

"Volunteer weather observations have played a large and important role in tracking, mapping and understanding our weather and climate for a long time -- much longer than most realize. Organized weather observing networks data back many centuries in places like China and Korea. Even here in the U.S., famous names like Benjamin Franklin and Thomas Jefferson were organizing weather observations already in the 1700s. In this talk we'll look at the history of organized volunteer observing networks such as the Smithsonian Meteorological Network of the 1800s and the US Weather Bureau/National Weather Service Cooperative Observer Network that is celebrating its 125th anniversary this year. The internet has enabled programs like ours, the Community Collaborative Rain, Hail and Snow network (CoCoRaHS), to grow and thrive.

We'll talk about what these networks have helped accomplish, and the remarkable importance of the data we (and many others before us) help collect.

Reserve your seat now by registering here: **OBSERVATIONS**

Be sure to attend our other CoCoRaHS WxTalk Webinars coming up this fall:

- Thursday, October 15, 2015 - 1PM EDT: "***The North American Monsoon: It's What Makes Summer Weather Interesting in the Southwestern United States!***", Christopher L. Castro, University of Arizona
- Thursday, November 12, 2015 - 11AM EST: "***Lake Effect Snow***", Thomas Niziol, The Weather Channel
- Thursday, December 3, 2015 - 1PM EST: "***SPECIAL WEBINAR - A Review of Significant Weather Events Occurring in 2015***", Greg Carbin, NOAA/Storm Prediction Center
- Thursday, December 10, 2015 - 1PM EST: "***Radiosondes, it's what's overhead that counts:"***, Paul Ciesielski, Colorado State University

Stay tuned for upcoming announcements on how to register for these Webinars.

Monday, August 17, 2015

Who Uses CoCoRaHS Observations? YES, IT REALLY IS TRUE! Your observations are used every day!

Almost daily someone asks the question, "*who cares about and who uses the observations from CoCoRaHS volunteers?"* It must be hard to fathom that precipitation data is so useful and that backyard rain gauges have a place of importance in national and global climate monitoring in the 21st Century. But the fact is, it's true. Your rainfall reports -- including your reports of zero precipitation – are very valuable and are being used EVERY DAY. Every morning many organizations pull data from the CoCoRaHS database at least every hour to get all the latest reports as they come in. They wish all CoCoRaHS observers submitted their reports right away.

When you see forecasts of river stages and flood levels on the Missouri, the Mississippi, the Ohio, the Colorado River or most anywhere else in the country -- guess what data are helping the forecasters make these forecasts? Yes, timely CoCoRaHS data!

Your reports of hail or heavy rain may trigger the NWS to issue severe thunderstorm or flash flood warnings. In cases of extreme localized storms, your local report could help save lives.

Don't let all this "importance" frighten you. The weight is not all on observers shoulders. The real value comes from having thousands of volunteers reporting from all over. So keep up the good work, and go out and find more weather enthusiasts to help measure, map and track the amazingly variable patterns of precipitation.

A key reason that CoCoRaHS data are so useful is because the rain gauge used by CoCoRaHS volunteers – the 4-inch diameter, 11.30" capacity clear plastic rain gauge is very good. Under most circumstances, this type of gauge performs as well as the official National Weather Service Standard Rain Gauge that has been used for over 120 years documenting our nation's climate. Most CoCoRaHS volunteers have found representative locations to mount their gauge to get very high quality readings. The CoCoRaHS gauge, if installed and used properly, provides very accurate readings. CoCoRaHS volunteers tend to be very

interested and very committed to careful and high-quality observations. As a result, the data are usually excellent for a wide range of uses.

Please visit our **WHO USES COCORAHS OBSERVATIONS?** page to learn more about how your observations are used. Thanks for your very, very useful observations!

Thursday, August 20, 2015

Oh my, it's Raining Cats and Dogs . . . be careful not to step in a Poodle!

Intense Precipitation -- Significant Weather . . . when and how do I report that?

This time of year many parts of the country experience heavy downpours. Because heavy precipitation can cause flooding and disrupt transportation, we encourage you to submit "Significant Weather Reports" at any time during the day or night.

http://www.cocorahs.org/Admin/MyDataEntry/IntensePrecipReport.aspx

Many have asked "How hard does it need to rain before I should submit an "Significant Weather Report"?" There is no universal definition of intense rain. What it takes to cause flooding varies through the year and from place to place. In general, any rain of at least 0.30" in an hour could be considered "heavy rain". Use your own judgment, and if you feel it is raining very hard, go ahead and report it. It is better to be safe than sorry.

If you would like to view the reports of intense precipitation from other observers then go to "View Data" and select: http://www.cocorahs.org/ViewData/ListIntensePrecipReports.aspx

Also, remember that even if you submit an intense precipitation report, that you still need to send in your normal daily report, too.

Thanks for helping!

Monday, August 24, 2015

Rainfall is Variable

We know from our CoCoRaHS observations that precipitation is distributed very unevenly across our network. If we look across the globe, we find that the variability is even greater. According to the US Geological Survey, Mt. Waialeale, Hawaii holds the world's record for average-annual rainfall.

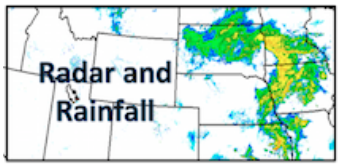
"Mt. Waialeale averages about 450 inches (1,140 cm) per year. A remarkable 642 inches (1,630 cm) was reported there during one twelve-month period (that's almost 2 inches (5 cm) every day!). Is this the world record for the most rain in a year? No, that was recorded at Cherrapunji, India, where it rained 905 inches (2,300 cm) in 1861. Contrast those excessive precipitation amounts to Arica, Chile, where no rain fell for 14 years, and in Bagdad, California, where precipitation was absent for 767 consecutive days from October 1912 to November 1914."

Want to find out more about the remarkable properties of precipitation? Click here: Precipitation

Finally, speaking of precipitation, check out our CoCoRaHS Water Cycle animation if you have a few minutes to spare. It's our most popular animation to date with over 380,000 views and is a good primer on how precipitation fits into the grand scheme of things on our blue planet.

Thursday, August 27, 2015

Radar and Rainfall



Radar is an acronym meaning Radio Detection and Ranging. During its initial development in WW II, weather was treated as "clutter", a problem that kept radar operators from seeing enemy targets. Shortly after the end of the war, scientists realized the great benefit of using radar to study storms. The radar displayed previously unseen patterns of storm growth and structure. Doppler capabilities allowed for the detection of tornados and downbursts. Radar also showed its utility in estimating precipitation.

The traditional way of turning radar measurements into rainfall data is to relate the power returned from the cloud to the radar (meteorologists refer to this as the "radar reflectivity") to some estimate of rain intensity measured on the ground. Once this so called Z-R relationship is determined, the radar data can be converted directly to rainfall over the entire coverage region of the radar. Usually, the rainfall estimates in the Z-R relationship come from rain gauge networks, like CoCoRaHS.

The great benefit of using radar is that it can estimate rainfall over a huge area, including most places where there are no rain gauges. However, it turns out that using radar to estimate rainfall is much more difficult than one might think for a number of reasons:

- 1. The radar reflectivity and rainfall relationship is not unique, it changes constantly within a storm, among different types of storms, and from place to place.
- 2. The radar looks within the cloud while the gauge is at the ground. The difference in height between where the radar is looking and the gauge can be thousands of feet. A lot can happen to those drops as they fall out of the cloud: some might evaporate and others might be blown far downwind from where the radar is looking.
- 3. The radar beam might be blocked by hills, trees or building and might not be able to see the cloud producing the rain.
- 4. The radar volume at all ranges is very much larger than the sample volume of a 4" rain gauge on the ground. This large volume may have a variety of reflectors - i.e. snow, hail, raindrops and cloud drops, all of which contribute to the reflectivity but which have very different water contents.

More information and links to information on radar and rainfall can be found on the CoCoRaHS web site by clicking here: "Radar" . . . oh, and don't forget to view Pat Kennedy's 2013 WxTalk Webinar on Radar: "WxTalk Radar".

Monday, August 31, 2015

Blowing Rain . . . sideways!

An Alabama observer wrote us several years ago asking: "*With the remnants of a tropical storm passing through Central Alabama the rain seems to be blowing sideways so hard that it doesn't "fall" into the rain gauge. Does the size of the rain gauge somehow compensate for this or is there more rain falling than gets measured?"*

Great Question! Here's our answer: Strong winds complicate rainfall measurement. It is not the angle of the rain that matters, but the fact that wind will deflect around the gauge (just as air moves around a fast-moving car). As the air is deflected around the gauge, some of the rain that was otherwise headed for the opening of the gauge may bend it's path and miss. To improve gauge catch it is good to have irregular obstacles around the gauge like bushes and shrubs that are approximately the same height as the gauge. Another option is to have the gauge installed close to the ground where the wind speed is lowest will help improve the gauge catch (assuming taller obstacles farther away aren't already blocking the rain).