



ANDERSON COUNTY
LIBRARY SYSTEM
Anderson, South Carolina



Training Slide Show

" Because every drop counts!"

What is CoCoRaHS?

CoCoRaHS is a national grassroots,
non-profit, community-based,
high-density precipitation network ...

...made up of volunteers of
all ages and backgrounds



... who take daily measurements of
precipitation right in their own backyards

Once trained,
our volunteer observers
collect data using low-cost
measurement tools ...



4-inch diameter
high capacity rain gauges



Aluminum foil-wrapped
Styrofoam hail pads



Things to know about...

- Rain**
 - Overview
 - Weather Radar
 - Measuring Rain
- Hail**
 - Overview
 - Hail Facts
 - Hail Figures
 - CoCoRaHS & Hail
 - Hail Pad Examples
 - Measuring Hail
- Snow**
 - Overview
 - Measuring Snow



Training is important to assure
accurate, high quality data

www.cocorahs.org

Volunteers report their daily observations on our interactive Web site or using our CoCoRaHS mobile App

The screenshot shows the CoCoRaHS website homepage. At the top, it says "COMMUNITY COLLABORATIVE RAIN, HAIL & SNOW NETWORK" with the tagline "Because every drop counts!". Below this is a navigation bar with links for Home, Countries, States, View Data, Maps, My Data, My Account, Admin, and Logout. A main menu on the left lists options like Home, About Us, Join CoCoRaHS, Contact Us, and Donate. The main content area features a "CoCoRaHS March Madness 2018" banner for March 1-31, 2018, with a report table for 2/15/2018 showing 8,531 daily reports. A map of the United States shows precipitation data, and a legend indicates precipitation amounts in inches. On the right, there are buttons for "JOIN CoCoRaHS", "TRAINING SLIDE-SHOWS", and "Things to know about..." for Rain, Hail, and Snow. At the bottom, there are download links for the app on the App Store and Google Play.

My Data Entry : Daily Precipitation Report Form

Precipitation Report Form Submit Data Reset

Station Number : CO-LR-610

Station Name : Fort Collins 3.5 SW

Denotes Required Field

4/24/2009 ***Observation Date**

7:00 AM ***Observation Time**

0.59 ***Rain and Melted Snow to the nearest hundredth inch that has fallen in the gauge during the past 24 hours**

Yes No **Report was taken at registered location?**

Observation Notes: (This will be available to the public.)

Heavy rain last evening. Several tree branches snapped off due to high winds. We sure needed that rain!

New Snowfall

NA **Accumulation of new snow in inches to the nearest tenth**

NA **Melted value from core to the nearest hundredth**

Total Snow and Ice on Ground at Observation Time

NA **Depth of total snow and ice (new and old) in inches to the nearest half inch**

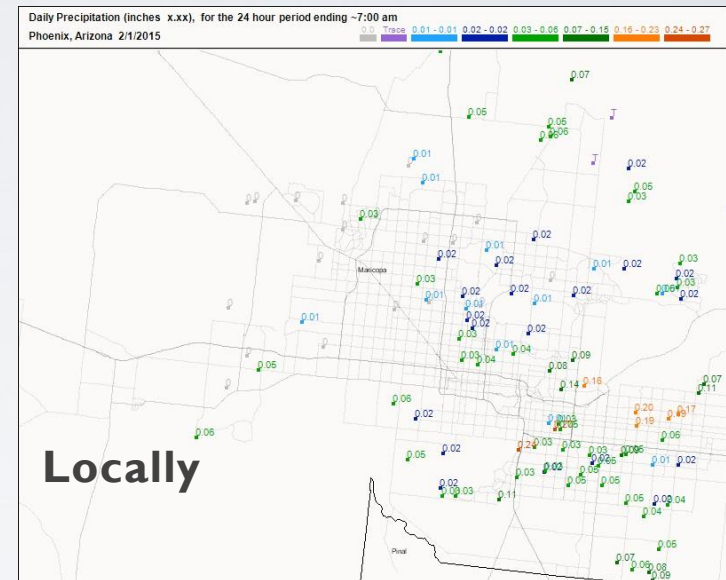
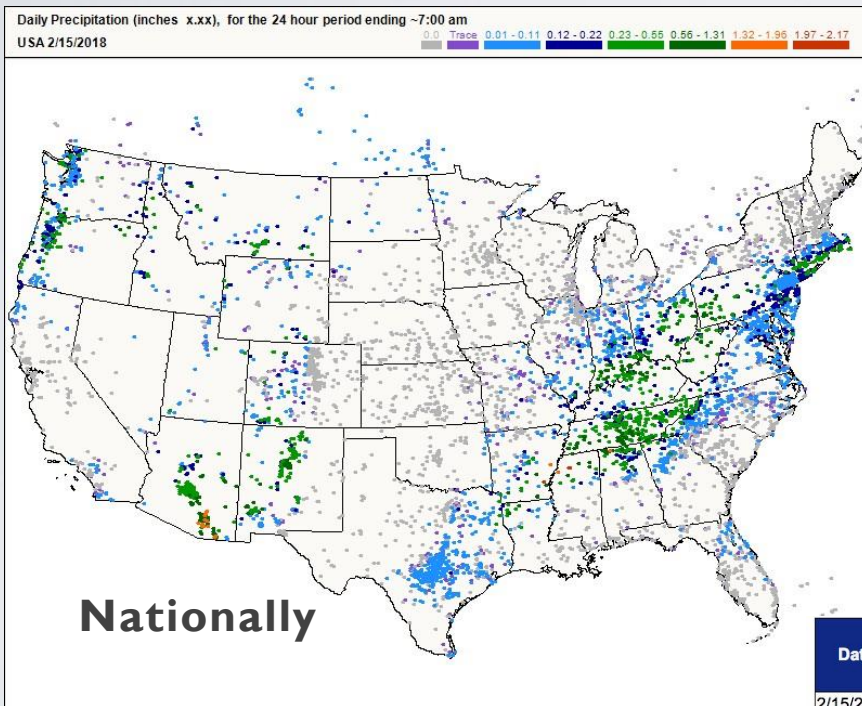
NA **Melted value from core to the nearest hundredth**



The screenshot shows the CoCoRaHS mobile app interface. At the top, it says "Logout", "Precip Report", and "Details". Below this is the CoCoRaHS logo and station information: "CO-LR-610 Fort Collins 3.5 SW". The main form fields are: "Observation Date" (2015-05-13), "Observation Time" (07:00), and "Rain/Melted Snow" (0.00). There are also toggle switches for "Trace Precip" and "Metric Units (mm/cm)". A "Submit" button is at the bottom. The app is running on a Verizon phone at 2:03 PM with 87% battery.

Immediately viewable

Volunteers observations are viewable in both map and table form within a few minutes



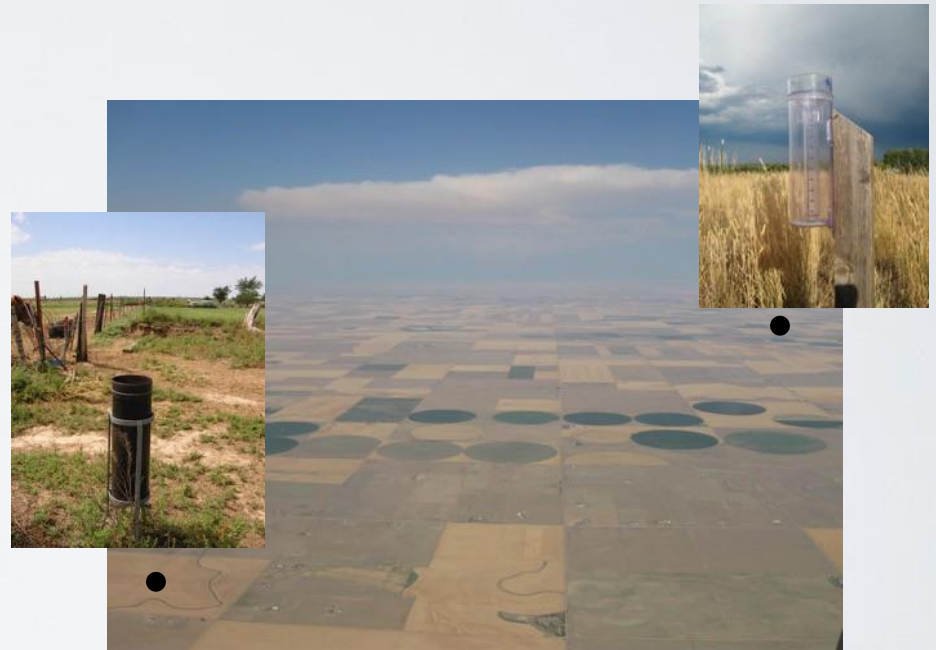
Date	Time	Station Number	Station Name	Total Precip In. ▲	New Snow In. ❄️	Total Snow In. ❄️	State	County	View	Maps
2/15/2018	7:00 AM	AZ-PM-109	Sahuarita 2.6 WNW	1.79	NA NA	NA NA	AZ	Pima		Classic New
2/15/2018	7:00 AM	AZ-PM-14	Tucson 1.5 NNE	1.60	NA NA	NA NA	AZ	Pima		Classic New
2/15/2018	7:00 AM	AZ-PM-313	Sahuarita 3.0 WSW	1.60	NA NA	NA NA	AZ	Pima		Classic New
2/15/2018	7:00 AM	AZ-PM-311	Green Valley 1.1 NW	1.43	NA NA	NA NA	AZ	Pima		Classic New
2/15/2018	7:00 AM	AZ-PM-172	Green Valley 3.9 NE	1.41	NA NA	NA NA	AZ	Pima		Classic New
2/15/2018	9:20 AM	AZ-PM-152	Tucson 9.7 ESE	1.40	NA NA	NA NA	AZ	Pima		Classic New
2/15/2018	7:00 AM	AZ-PM-10	Tucson 8.4 ESE	1.39	NA NA	NA NA	AZ	Pima		Classic New
2/15/2018	7:00 AM	AZ-PM-272	Green Valley 2.7 NNE	1.39	NA NA	NA NA	AZ	Pima		Classic New
2/15/2018	7:00 AM	AZ-PM-269	Green Valley 1.2 W	1.38	NA NA	NA NA	AZ	Pima		Classic New
2/15/2018	8:36 AM	AZ-PM-204	Vail 8.6 SSE	1.36	NA NA	NA NA	AZ	Pima		Classic New

Why CoCoRaHS?

Great question!



Precipitation is important
and highly variable



Data sources are few and
rain gauges are far apart

Measurements from many sources are not always accurate (especially snow)



There is almost no quantitative data being collected about hail



Storm reports can save lives

CoCoRaHS's main focus is to provide:

**Quality Precipitation Data
&
Educational Opportunities**

to help the public better
understand weather and climate



Examples of CoCoRaHS data users

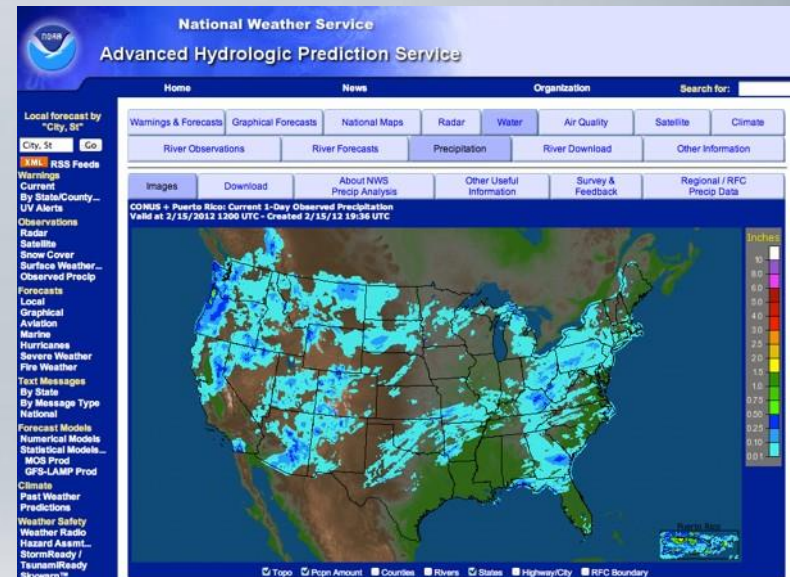
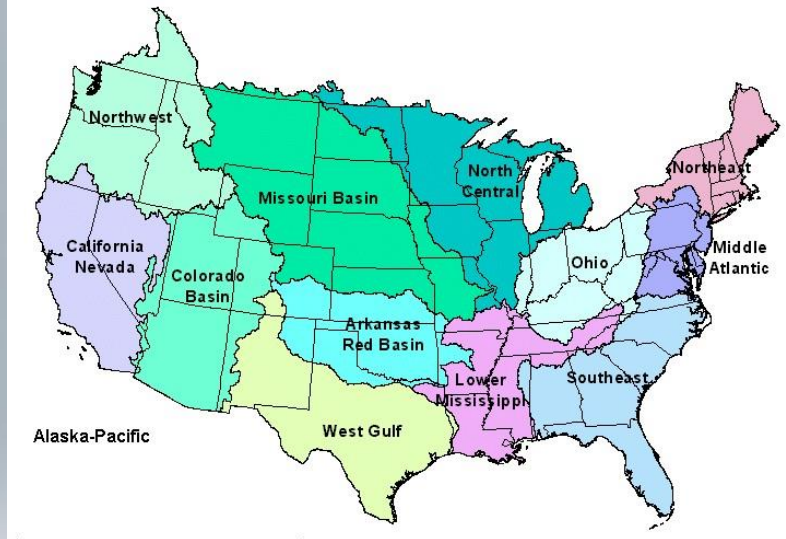
National Weather Service
Other Meteorologists
Hydrologists
Emergency Managers
City Utilities
 -Water supply
 -Water conservation
 -Storm water
Insurance adjusters
USDA—Crop production
Engineers
Scientists studying storms
Mosquito control
Farm Service Agency
Ranchers and Farmers
Outdoor & Recreation

Teachers and Students
Geoscience education tool
Taking measurements
Analyzing data
Organizing results
Conducting research
Helping the community



NOAA's River Forecast Centers

River Forecast Centers

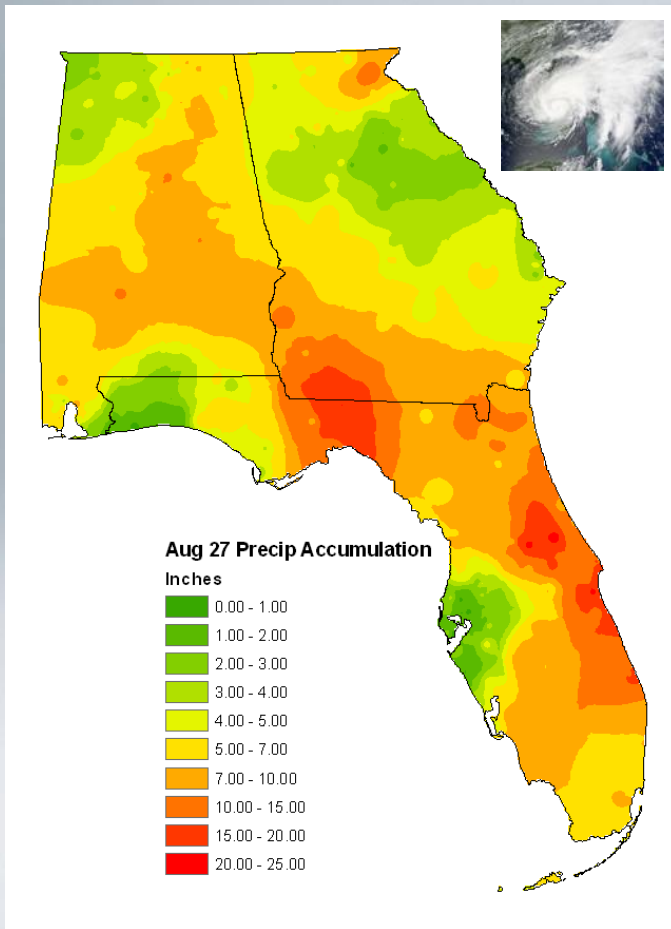


"Your data has filled in the holes in our NWS/USGS gage network. It also is used to improve the bias used in our Multisensor Precip Estimates. The more ground truth - the more accurate our river forecasts are."

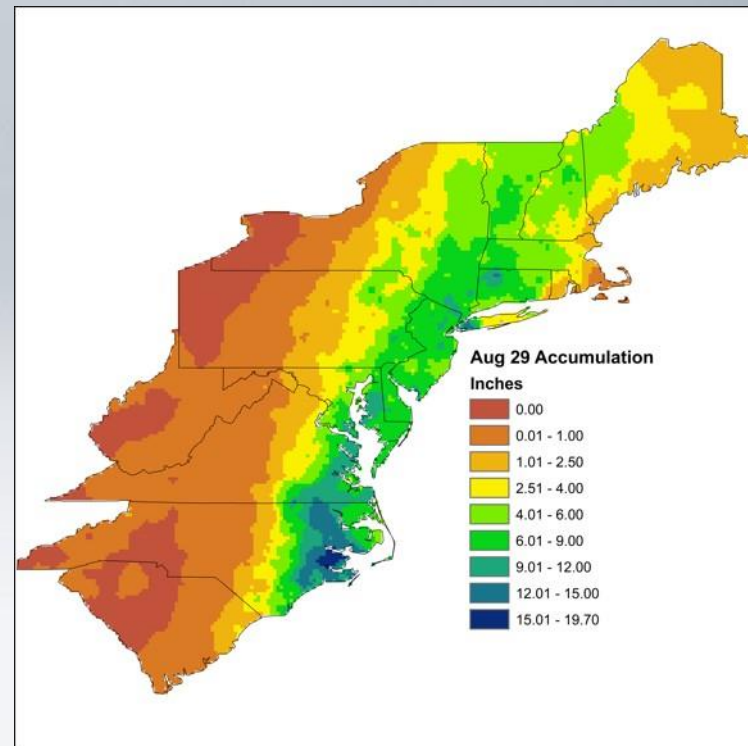
Patricia Wnek – Mid Atlantic River Forecast Center

NOAA's National Hurricane Center - Tropical system post storm analysis

"We use the CoCoRaHS data in our post-storm summary to describe the overall impacts of a tropical cyclone event."
Dan Brown - National Hurricane Center



2008 – Tropical Storm Fay

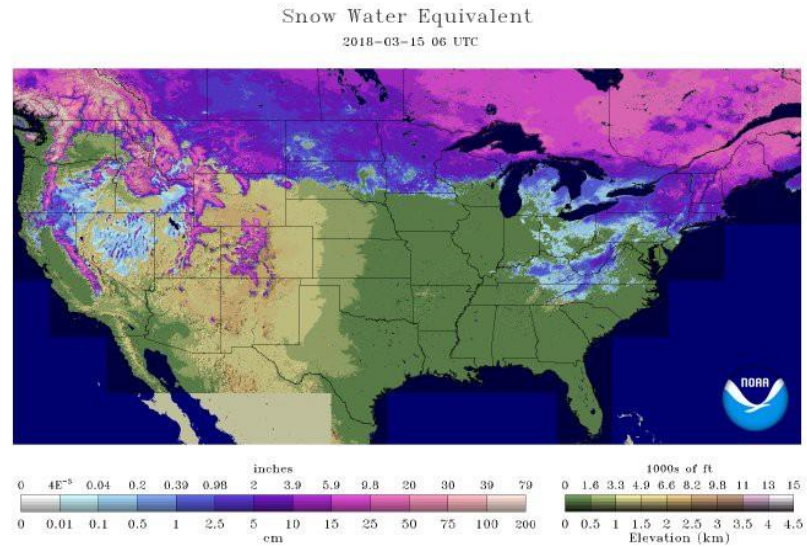


2011 – Hurricane Irene

NOHRSC – National Operational Hydrologic Remote Sensing Center

Snow water equivalent (SWE) for Snowpack monitoring

-- getting a heads up on snowmelt



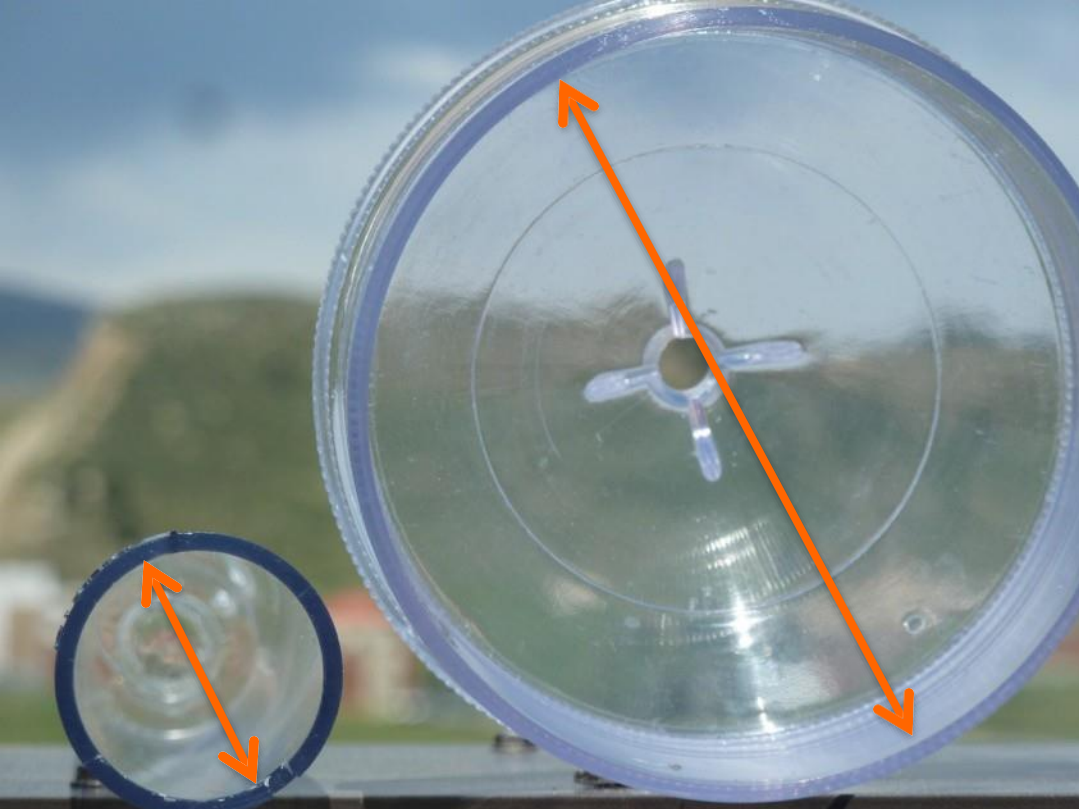
Often, over 50% of their snow observation reports come from CoCoRaHS observers

Measuring Rainfall with Gauge

*“Accuracy and consistency
are very important”*

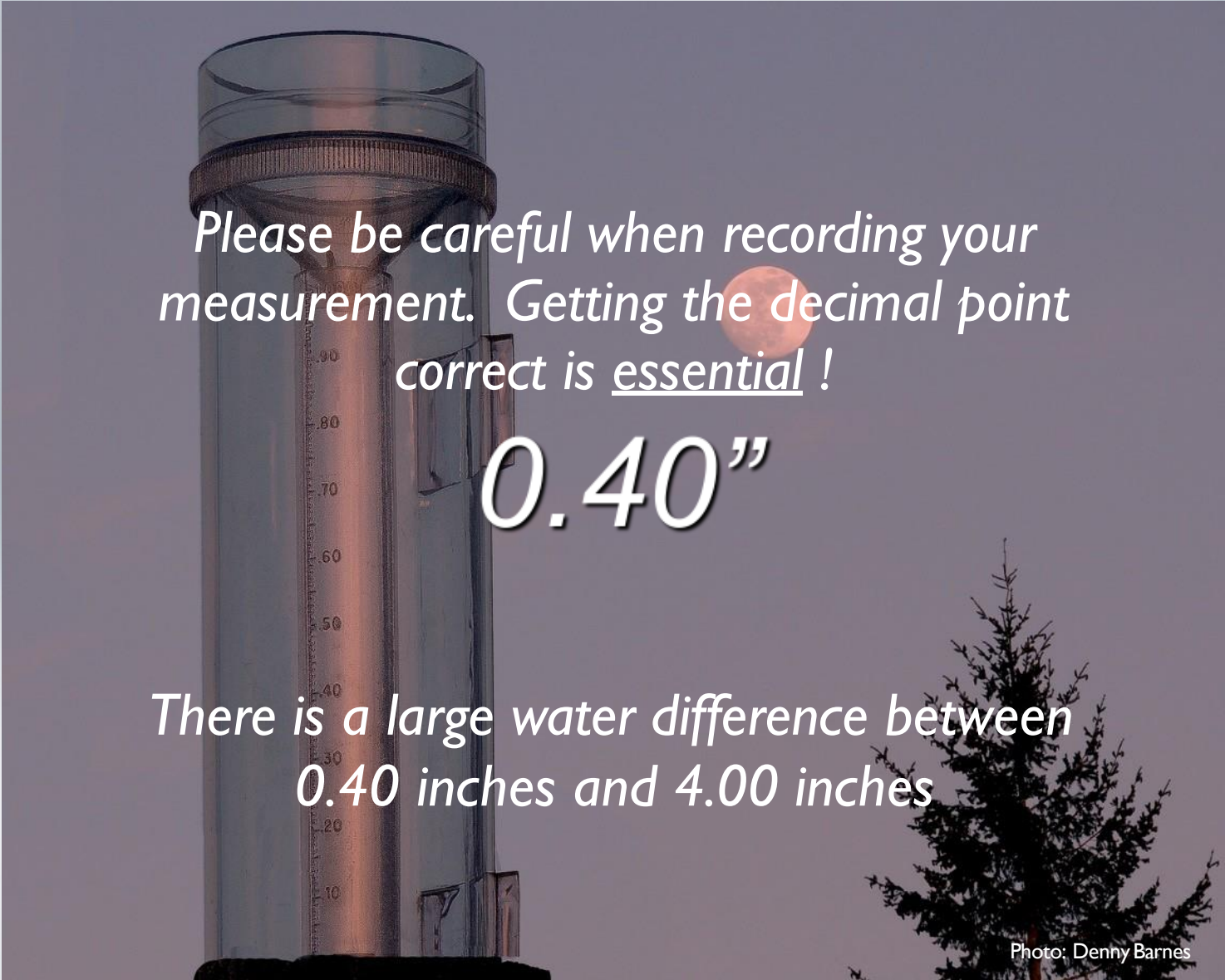


Photo: Steve Camp



One inch of rain in the inner tube looks different than one inch of rain in the outer tube

A Word about Decimals



Please be careful when recording your measurement. Getting the decimal point correct is essential!

0.40"

There is a large water difference between 0.40 inches and 4.00 inches

Please do not round up

It is very important to record as accurately to the nearest hundredth of an inch.

Please do not round up to the nearest tenth!

*If you measured **0.98"** please record that amount.
Do not record it as **1.00"***

When should we take our observations?



7:00AM is preferred

Between 4:30AM and 9:30AM is OK

Other times are accepted, but they will not appear on CoCoRaHS Maps

Reading Gauge

Here are the most common situations you will encounter



YOUR MOST COMMON OBSERVATION WILL BE ...

ZERO 0.00”

*It is important to know
where it did NOT rain.*

Please report zeros!

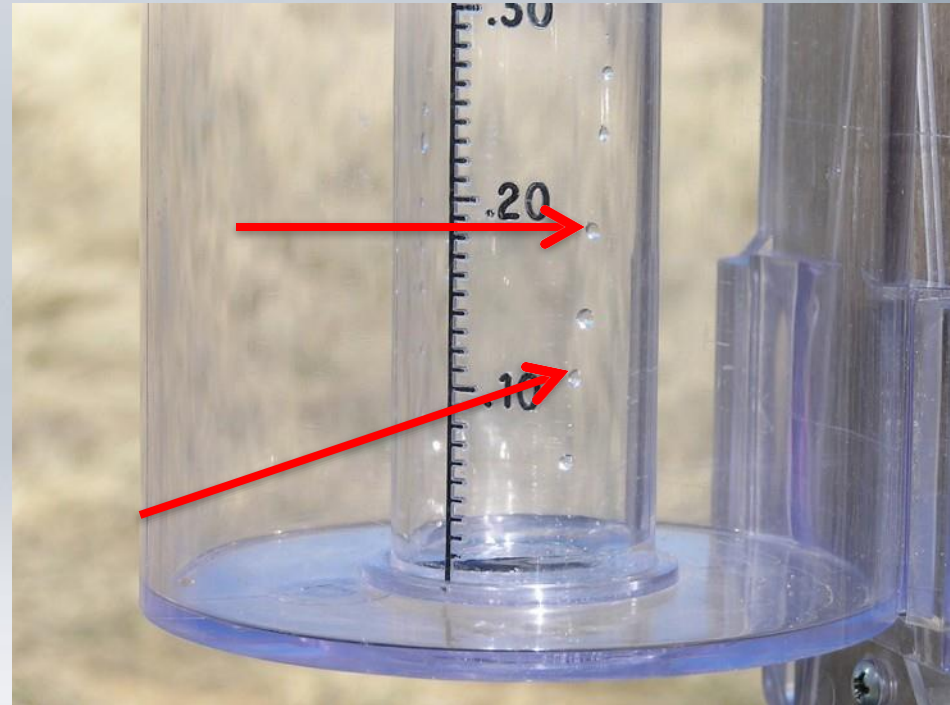


Trace “T”

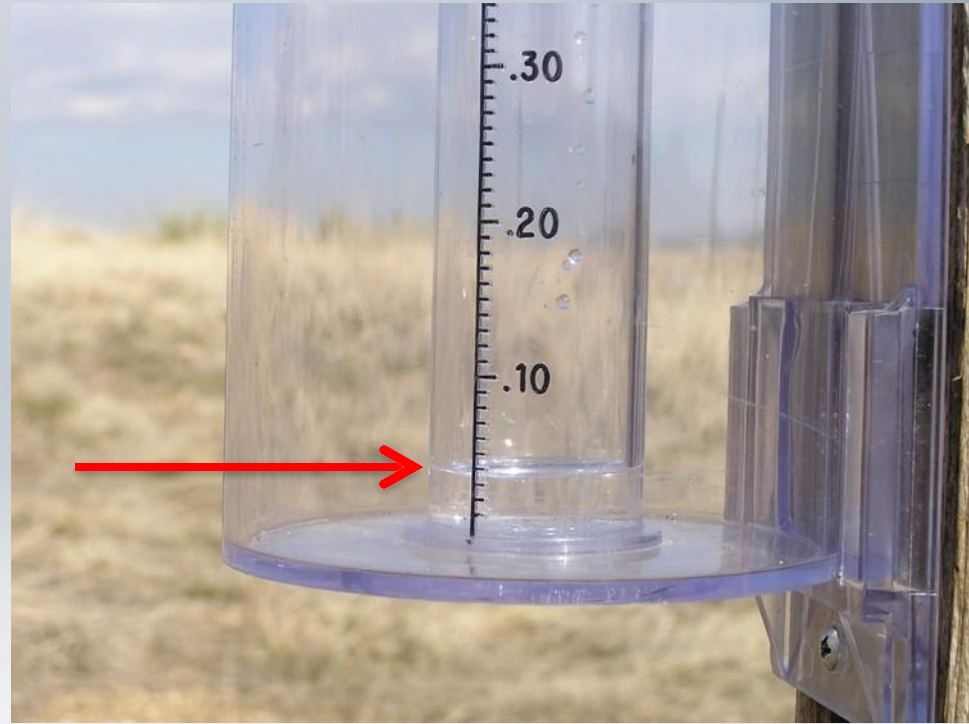
When only a drop or two wet the gauge record “T” for Trace

OR

A sprinkle of rain or a few flakes of snow observed at your location should be reported as a Trace for your next observation, even if it does not fall in the rain gauge.



Between “*T*” and
“*one tenth*”
of an inch



“That’s **0.04**” or *four hundredths*

The Meniscus

*The surface of the water in the gauge looks curved.
How do I know where to read?*

As water fills up the measuring tube, a curved surface is formed called a meniscus. It is formed by the surface tension of a liquid in contact with the sides of the tube.

Always read the bottom of the **meniscus**, when the making your daily rain measurements.



Lots of rain !!

When more than an inch of rain falls the precipitation will overflow into the outer cylinder.

The whole gauge has a capacity to hold eleven inches.



To measure greater than one inch ...



Pour out the first inch from the inner tube and write it down.



Pour the remaining water into the funnel and measure the inner tube.



Continue until all of the water has been measured. Make sure you keep track of your measurements along the way.

Finally add up all of your measurements

1.00 inch
0.97 inches
0.88 inches
+ *0.92 inches*
Total = 3.77"



Measuring Snow

" Snow is good"
- Nolan Doesken



Two ways in which snow is measured

Our observers measure:

1. Liquid water content of snow
 - from the gauge
 - from a core sample
2. Depth of snow
 - 24 hour snowfall accumulation
 - existing snow depths



Reporting Observations

- Use the *12 Month Daily Report Form* to record your precipitation reading from ACL-Main's rain gauge at **10:00 AM daily!**
- If we are closed, a multi-day precipitation report will be submitted by us.



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CoCoRaHS 12 Month Daily Report Form

Station Number: _____ Normal Obs Time: _____
Station Name: _____

Day	Jan	Feb	Mar	April	May	Jun	July	Aug	Sept	Oct	Nov	Dec
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
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22												
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24												
25												
26												
27												
28												
29												
30												
31												
Total												

*Try to check your gauge each day at the same time.

*Use back of page for comments of weather, (i.e. Jan 4. Blizzard)

*If precipitation was noted, but less than 0.01", record "T" for trace.

The CoCoRaHS Web site

CoCoRaHS COMMUNITY COLLABORATIVE RAIN, HAIL & SNOW NETWORK
"Because every drop counts"

Home | Countries | States | View Data | Maps My Data | My Account | Admin | Logout

Welcome to CoCoRaHS! "Volunteers working together to measure precipitation across the nations."

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- [The Catch](#)
- [Message of the Day](#)

Who uses CoCoRaHS Observations?

9,362 daily precipitation reports received today as of 5/10/2016 5:03 PM EDT

Daily Precipitation (inches x.xx)
USA
5/10/2016

0.0
Trace
0.00 - 0.25
0.26 - 0.50
0.51 - 1.26
1.27 - 3.02
3.03 - 4.53
4.54 - 5.04

JOIN COCORAHS

TRAINING SLIDE-SHOWS

Things to know about...

- **Rain**
- **Hail**
- **Snow**

Canada

For Info on what is happening in SC, visit the state page - <https://www.cocorahs.org/State.aspx?state=SC>

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South Carolina

State Menu

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- State Coordinators
- Maps

South Carolina Reports

- Daily Precip
- Multi-Day Precip
- Hail Reports
- Significant Weather

View All Reports

- Daily Precip
- Daily Comments
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- CoCoRaHS Blog
- Web Groups
- State Newsletters
- Master Gardener Guide
- State Climate Series
- March Madness
- WXtalk Webinars
- Sponsors
- Links
- CoCoRaHS Store

Daily Precipitation (inches X.XX) South Carolina 12/17/2020

0.0
Trace
0.00 - 0.10
0.11 - 0.20
0.21 - 0.45
0.46 - 1.14
1.15 - 1.71
1.72 - 1.90

South Carolina CoCoRaHS Regions

South Carolina Regions

- Midlands
- Northeast
- Southeast
- Upstate

facebook

Who uses CoCoRaHS Observations?

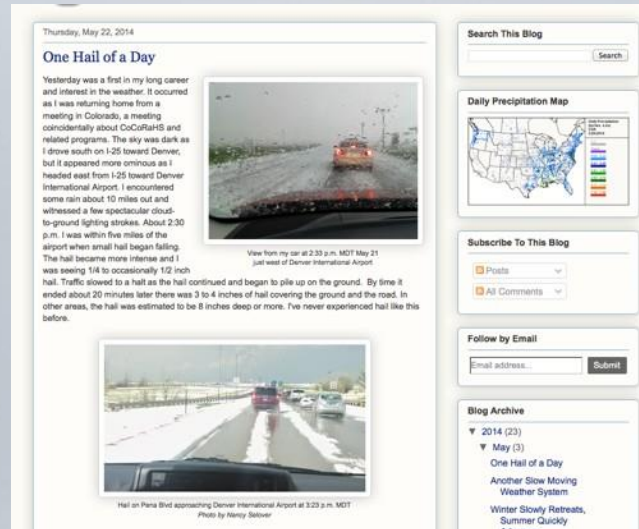
- Weather Forecasters
- Hydrologists
- Water management
- Researchers
- Agriculture
- Climatologists
- Insurance Industry

299 people like this
316 people follow this

See more of CoCoRaHS South Carolina on Facebook

Or visit their Facebook page!

Where can I go for additional resources?



Answer: CoCoRaHS has a variety of resources to connect to from its homepage.

There are educational YouTube videos, the CoCoRaHS Blog, Messages of the Day, State Newsletters, Measuring Evapotranspiration and a climate guide for Master Gardeners just to name a few. You can also connect to CoCoRaHS via social media such as Facebook and Twitter.

YOU are now ready to measure precipitation
for the CoCoRaHS Network!



Thanks for being one of our volunteer observers at the



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