



Introduction To CoCoRaHS



CoCoRaHS is a non-profit precipitation network made up of volunteers of all backgrounds and ages who take daily measurements of precipitation right in their own backyards.



The screenshot shows the CoCoRaHS website interface. At the top, it says 'COMMUNITY COLLABORATIVE RAIN, HAIL & SNOW NETWORK'. Below that, there's a navigation bar with links like 'Home', 'Countries', 'States', 'View Data', 'Sign In', 'My Data', 'My Account', and 'Logout'. The main heading is 'My Data Entry: Daily Precipitation Report Form'. Below this, it says 'For observations spanning more than 24 hours, please use the [multiple day accumulation report](#)'. The form itself has sections for 'Enter My New Reports' (with links for Daily Precipitation, Multi-Day Accumulation, Hail, Snowfall, and Snow Melt), 'List/Edit My Reports', and 'Observation Notes'. The 'Observation Notes' section has a text area for notes. The 'New Snowfall' section has fields for 'Accumulation of new snow in inches to the nearest tenth', 'Melted value from core to the nearest hundredth', 'Total Snow and Ice on Ground at Observation Time', and 'Depth of total snow and ice (new and old) in inches to the nearest half inch'. The 'Duration Information' section has fields for 'Precipitation Began', 'Precipitation Ended', and 'Heaviest Precipitation Began'.

CoCoRaHS aims to provide the highest quality data for the many users of the data by using low-cost measurement tools, stressing training and education, and utilizing an interactive website.

Help be a part of the mission and save lives!



STORM TOLL
Deaths - 5 confirmed
Injuries - 40
Missing - 16
Rescued - 160
Damages - Tens of millions of dollars at Colorado State University, \$1.5 million to \$2 million to city roads and bridges; \$1 million to city parks and trails; no estimate for private property.
Source: Emergency Officials
All information as of 1 a.m. today

Wednesday
FORT COLLINS COLORADOAN
City death toll at 5; damage in millions
FLOOD
CSU's book losses speak volumes
Rainfall breaks 20-year record

July 30th 1997



Who Uses CoCoRaHS Data?

- National Weather Service
- Meteorologists
- Turf and Landscape Professionals
- Hydrologists
- City Utilities
 - Water supply
 - Water conservation
 - Storm water
- Emergency Managers
- Insurance adjusters
- USDA - Crop production
- Ranchers and Farmers
- Engineers
- Mosquito control
- Outdoor & Recreation
- Teachers and Students
 - Geoscience education tool
 - Taking measurements
 - Analyzing data
 - Organizing results
 - Conducting research
 - Helping the community



Why CoCoRaHS?

“Because every drop counts!”

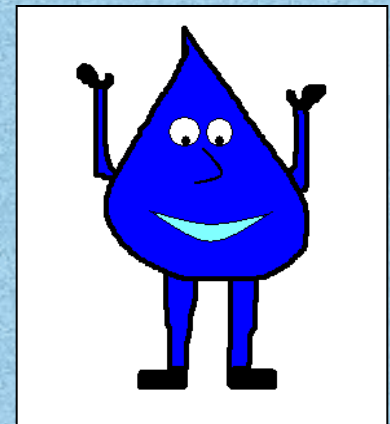
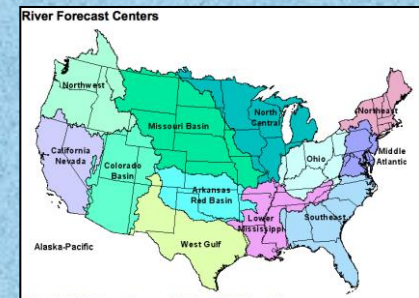
- In addition to 24-hour daily precipitation reports, provides real time reports of hail and intense precipitation that aid in the issuing and verifying of life-saving warnings and advisories
- Increases climatological rainfall monitoring network by several hundred %
- Provides detail of extremely localized rainfall patterns for condition monitoring such as drought or wet conditions
- Helps to capture accurate measurements of localized heavy rainfall responsible for deadly flash flooding and river flooding



Why CoCoRaHS?

“Because every drop counts!”

- Provides tremendous amounts of additional data to regional River Forecast Centers, to aid in the monitoring and prediction of river flows and flooding conditions
- Establishes a large database of good quality precipitation observations for local analysis and study-consistency and education
- Mobilizes a pool of extremely interested local weather enthusiasts who could be considered to help fill gaps in the co-op network caused by retirement or observer departure
- Provides additional material for school curriculum to include the measurement of precipitation and standard observing practices into science education

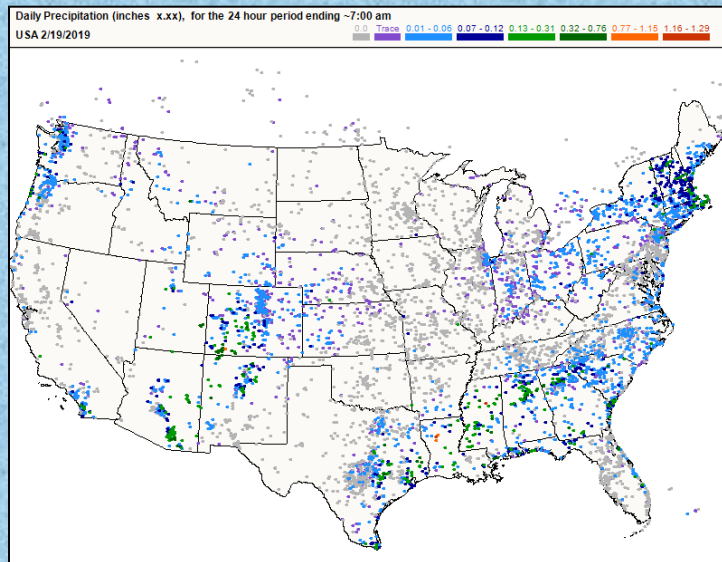


CoCoRaHS Reports

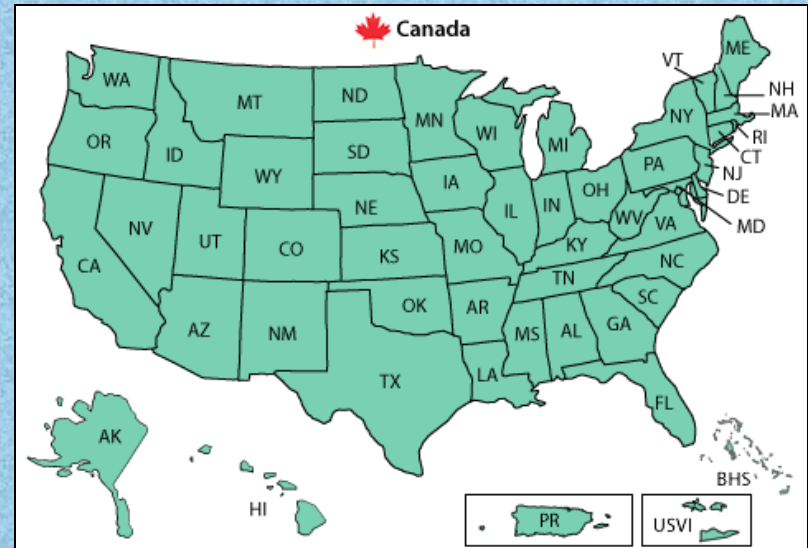
Immediately Viewable

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

Observations on a specific day



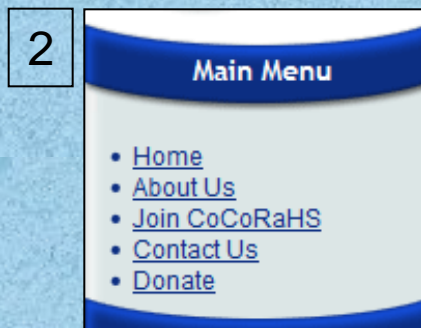
Locations with CoCoRaHS



Date ▲	Time	Station Number	Station Name	Total Precip in.	New Snow in. ❄️💧	Total Snow in. ❄️💧	State	County	View	🗺️ Maps
2/19/2019	12:00 AM	OH-MY-34	Union 1.0 WSW	T	0.1 NA	NA NA	OH	Montgomery	Classic New	
2/19/2019	12:01 AM	OH-CN-16	Wilmington 1.6 SSE	T	0.1 NA	T NA	OH	Clinton	Classic New	
2/19/2019	4:00 AM	OH-CB-8	Hanoverton 0.4 ENE	0.00	0.0 0.00	0.2 NA	OH	Columbiana	Classic New	
2/19/2019	4:30 AM	OH-GG-4	Montville 1.2 SSE	0.02	0.4 NA	1.0 NA	OH	Geauga	Classic New	
2/19/2019	5:00 AM	OH-DR-7	Versailles 1.6 WSW	0.03	0.3 0.03	0.3 0.03	OH	Darke	Classic New	
2/19/2019	5:00 AM	OH-HR-2	Bellevue 0.6 N	0.06	0.0 0.00	0.0 0.00	OH	Huron	Classic New	
2/19/2019	5:00 AM	OH-WD-14	Perrysburg 1.6 WSW	0.00	0.0 0.00	1.0 NA	OH	Wood	Classic New	
2/19/2019	5:30 AM	OH-CW-3	Bucyrus 1.0 NW	0.01	0.2 NA	T NA	OH	Crawford	Classic New	
2/19/2019	5:35 AM	OH-CB-2	Salem 1.0 NNE	0.03	0.5 0.03	1.0 NA	OH	Columbiana	Classic New	
2/19/2019	6:00 AM	OH-AL-8	Delphos 2.3 ESE	T	0.0 0.00	0.4 0.02	OH	Allen	Classic New	

Getting Started -As Easy as 1, 2, 3!

- 1) Enthusiasm to measure precipitation daily (or as often as you can) and ability to transmit observations with the CoCoRaHS app or on the website.
- 2) A completed application form that is available online at www.cocorahs.org. You will then receive a unique station number and a station name via email.
- 3) A 4 inch rain gauge installed in a good place. Available on the CoCoRaHS website or many other places online.



3



Station Number : OH-CN-16

Station Name : Wilmington 1.6 SSE

Gauge Placement-Just do your best!

Preferred



Not Preferred



Bevel and Level

If you can!

This helps to reduce precipitation splashing into the gauge and helps to make sure the precipitation that is falling from the sky is making it into the gauge



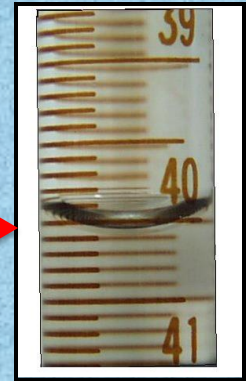
How to Measure Precipitation

Reading Your Rain Gauge

Read at eye level



Read the bottom of the meniscus
(caused by surface tension-looks like a contact lens)



-7:00 AM is the preferred time, however any time between 4:30am and 9:30 AM will show up on the map. Whatever time is good for you as long as it is consistent from day to day.



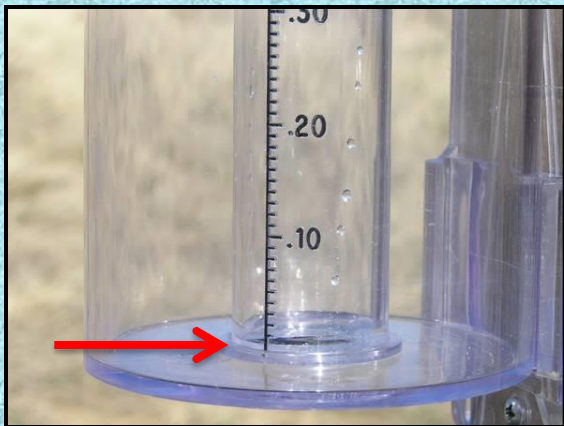
Reading Your Rain Gauge – 0.00

Your most common observation will be 0.00, nothing. It is important to know where it did not rain!

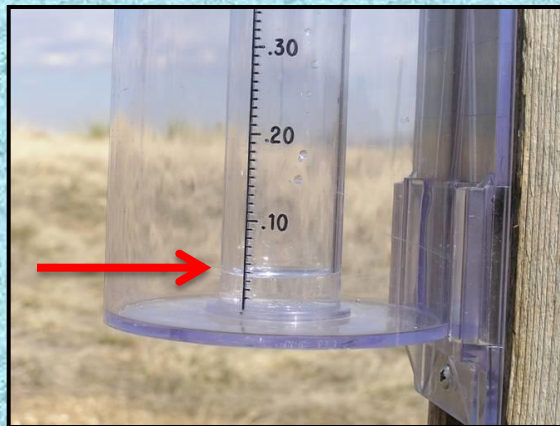
Please report zeros.



Trace (T)



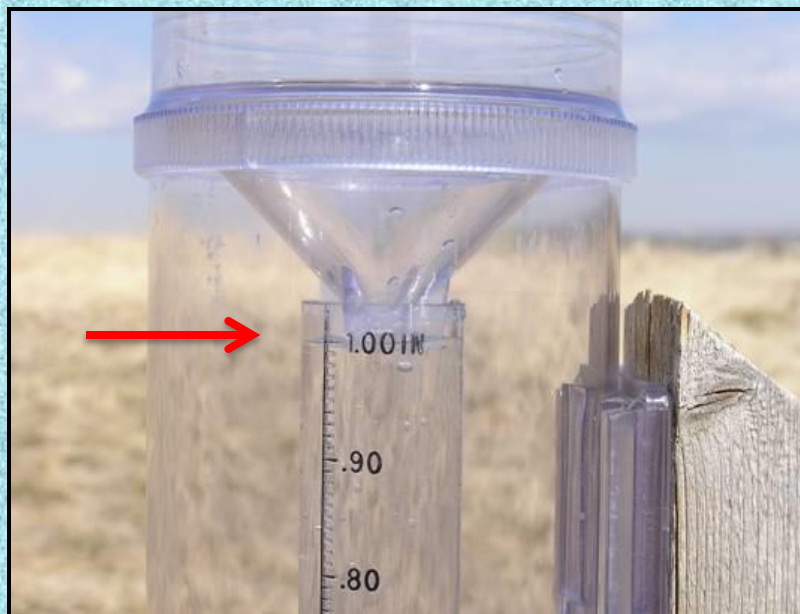
0.04 inch



0.50 inch



1.00 inch



Over an inch



Reading Your Rain Gauge – Over An Inch

- When more than an inch of rain falls, the precipitation will overflow into the outer cylinder. The whole gauge has the capacity to hold 11 inches.
- In order to measure this amount pour out the first inch from the inner tube.
- Now pour the remaining water into the funnel & measure using the inner tube.



Reading Your Rain Gauge – Over An Inch

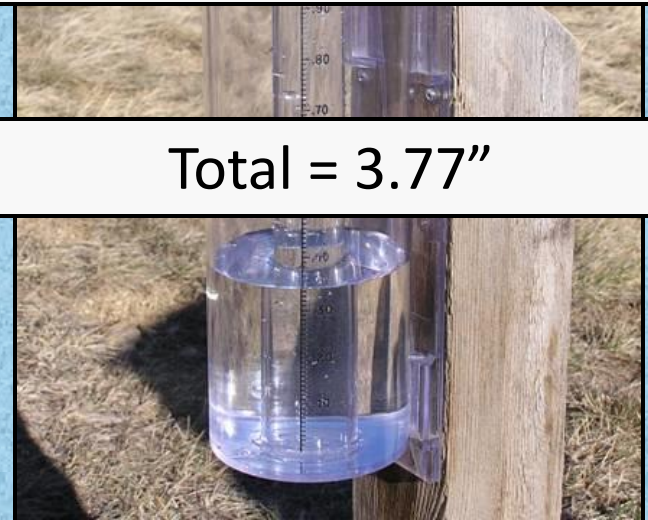
-Continue until all of the water has been measured. Make sure you keep track of your amounts along the way!



Then add up all of your measurements

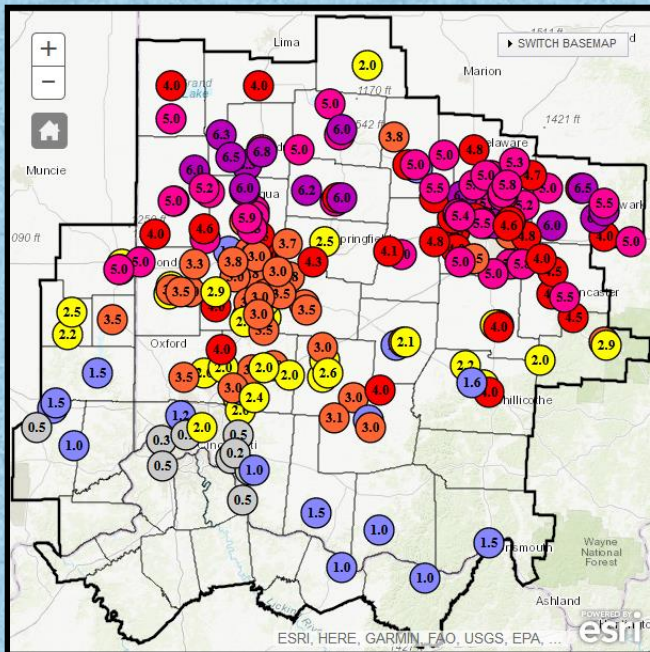
$$1 \text{ inch} + 0.97 \text{ inches} + 0.88 \text{ inches} + 0.92 \text{ inches} = 3.77 \text{ inches}$$

Total = 3.77"



Winter Precipitation

Although they take a little more time, accurate and timely snowfall measurements can be extremely important to the local National Weather Service office, departments of public works, media outlets, climatologists, and other scientists.



Winterize Your CoCoRaHS Gauge!

- Take the funnel and inner tube out
 - *So the rain gauge won't freeze and crack.
 - *Can't accurately catch snow in the funnel and small tube.
 - *If it rains when you have removed the funnel and small tube, it's ok.
 - *You can just dump the rain back into the funnel and the small tube and measure just like you would with an overflow heavy rain sample.



Snowfall Measuring-

Tools Of The Trade

-Snow Stick

- *Also known as a yard stick
- *Aluminum works the best – won't warp from getting wet
- *Ideally, a yardstick with tenths of an inch works best, however you can use any standard yardstick and just convert the values.

Measurement on ruler	Measurement in tenths of an inch
$\frac{3}{4}^{\text{th}}$	0.8
$\frac{1}{2}$	0.5
$\frac{1}{4}^{\text{th}}$	0.3
$\frac{1}{8}^{\text{th}}$	0.1
$\frac{1}{16}^{\text{th}}$	0.1
Less than $\frac{1}{16}^{\text{th}}$	Trace



Snowfall Measuring-

Tools Of The Trade

-Snow Board

- *A sheet of plywood, painted white
- *2'x2' works nicely
- *1/2" to 3/4" thick plywood
- *It's a flat, level surface that makes a great place to accurately measure snow when placed in an area that does not receive drifting



Snowfall Measuring-

Tools Of The Trade

- “Snow-Swatter” and spatula –Helps in taking core samples



Snowfall Measuring-

What To Measure

- 1) ***Depth of new snow*** – measured to the nearest tenth of an inch and measured from snow board using snow stick (last 24 hrs)
- 2) ***Depth of total snow (new + old)*** – measured to the nearest half inch and measured from ground using snow stick
- 3) ***Water content of melted snow*** – measured to the nearest hundredth and measured with your rain gauge
- 4) ***Core sample from snow board (optional, but encouraged)*** – measured to the nearest hundredth and measured with gauge
- 5) ***Core sample from ground (snow water equivalent, again optional, but encouraged...especially on Mondays)*** – measured to the nearest hundredth and measured with gauge

1) Measuring The Depth Of New Snow

Goal: Measure the amount of new snow that has fallen in the past 24 hours

- Tools: Snow stick and snow board
- *Find a nice, level place to measure where drifting or melting has not occurred (like a snowboard)
- *Slide snow stick into snow until it reaches the board surface
- *Read the value on the snow stick (value is always to the nearest tenth of an inch like 3.4 inches)
- *Sweep the snowboard clean
- *Enter the report using the CoCoRaHS website



Frequently Asked Questions

- What if snow accumulates, melts, and accumulates again?
 - The snowfall is the sum of each accumulation before melting.
 - For example: Three separate snowfalls occur during the day. You go out and measure the snow after each has ended. The first snowfall is 2.0 inches, the second is 1.5 inches, and the third is 1.0 inch. The snow melts after each snowfall and therefore there is nothing on the snowboard at observation time the next morning. The snowfall for the 24-hour period should be recorded as the sum of the individual events or 4.5 inches.
- What if you see snow flurries, but there is nothing in the gauge?
 - Snowfall would be reported as a trace. If this is the only precipitation, the 24hr precipitation value would also be a trace.

2) Measuring The Depth Of Total Snow

Goal: Measure the total amount of snow on the ground at your location, including both new snow and snow that was already there

-Tools: Snow stick

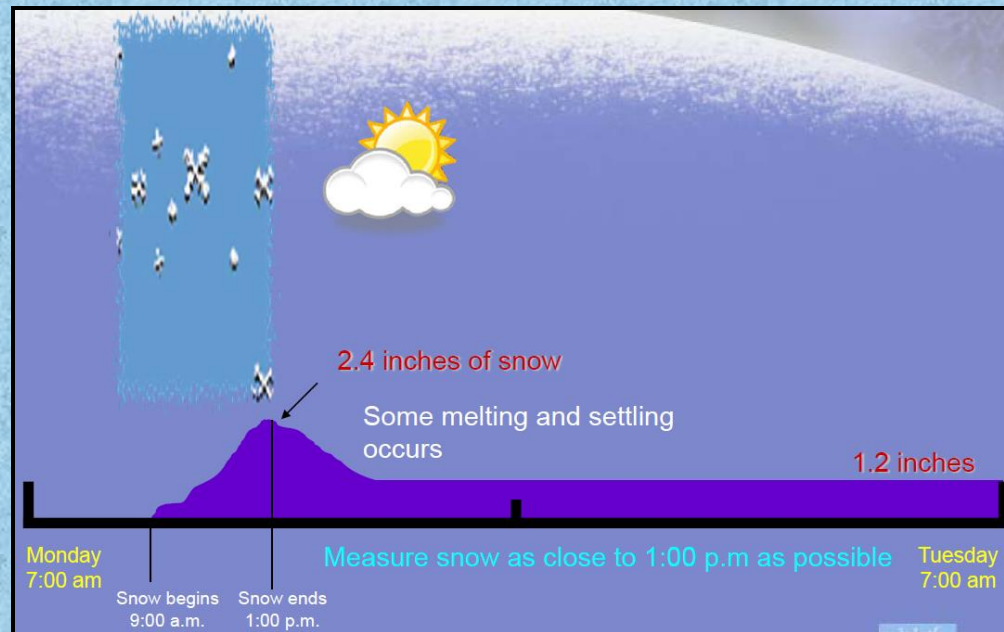
- *Find a level spot, not drifted over, blown clear, or melted
- *Slide snow stick through all layers of snow (new and old)
- *Read value on snow stick and record the value (values are to the nearest $\frac{1}{2}$ " like 4.5 or 5.0)
- *Report the value using the CoCoRaHS website.



REMEMBER: Report total snow depth every day there is any snow on the ground!

Frequently Asked Questions

- It's done snowing, the sun is coming out, and the snow will melt. Should I measure it now instead of waiting until 7 AM?
 - Yes! If you know the snow will melt, you should measure the amount now.
 - This is the 24 hour new snowfall on your next report (2.4 inches)
 - You will report 1.0 for the snow depth, since that measurement means snow on the ground at the time of observation (to the nearest half inch)!



Frequently Asked Questions

- There has been drifting and some areas have more snow than others. How do I accurately measure this?
 - Never measure in a drift!
 - Take several measurements from the least drifted areas around the yard. Average the amounts out to come out with a representative value.



Frequently Asked Questions

- Snow only covers part of my yard. What do I report as my total snow depth?
 - You will want to take the average of the bare and covered areas. If there is 1 inch in the covered area and 0 in the bare area, your average would be a snow depth of 0.5 inches.
 - You can also report a T for a trace of snow depth if it is less than half an inch.
 - You shouldn't count artificially made piles of snow as snow depth (from snowplows or shoveling, etc.)



3) Measuring The Water Content Of The Melted Snow In The Gauge

Goal: Determine how much liquid is in the new snow

-Tools: 4 inch CoCoRaHS rain gauge, possible snow swatter

*Remove your gauge from its mounting bracket

*Bring the gauge inside

Note that we never measure the depth of the snow in the rain gauge itself. Any frozen precipitation in the rain gauge must first be melted, then measured.

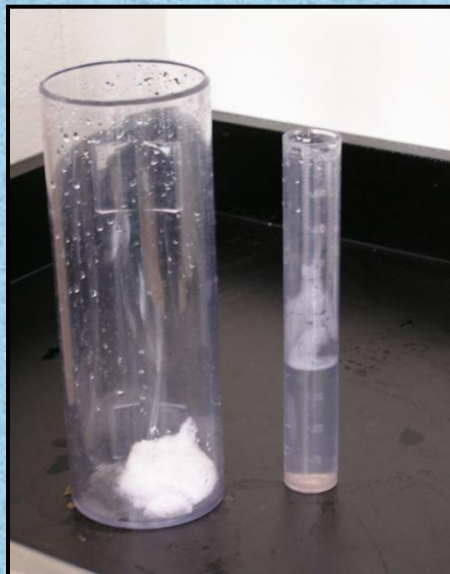


Measuring The Water Content Of The Melted Snow In The Gauge

Goal: Determine how much liquid is in the new snow



- Take your inner cylinder and add warm water to it.
- Carefully measure and record the amount of warm water you added to the inner cylinder.



- Now you have two cylinders, one with snow inside it and the other with a carefully measured amount of warm water!

Measuring The Water Content Of The Melted Snow In The Gauge

Goal: Determine how much liquid is in the new snow

- Pour the carefully measured amount of warm tap water into the snowfall sample.
- Allow the snow sample to completely melt (swishing it around can help).
- Now the cylinder contains all water, some of it melted snow and the rest tap water.



Measuring The Water Content Of The Melted Snow In The Gauge

Goal: Determine how much liquid is in the new snow

- Pour the water back through the funnel into the smaller inner cylinder.
- Be careful not to spill! 😊



Measuring The Water Content Of The Melted Snow In The Gauge

Goal: Determine how much liquid is in the new snow

- Carefully read the amount in the cylinder.
This amount represents the melted snow + the water you added.
- In this case we see that the snow melted down into 0.29" of liquid.
- Melted snowfall is measured in hundredths of an inch just like rainfall.

Tube full	0.79
- Water added	0.50

Final reading	0.29



4) Measuring The Water Content Of The Snow From The Snow Board

Goal: Determine how much liquid is in the new snow (past 24 hours)

- Sometimes windy conditions might create a situation where an accurate amount of snow has not fallen into the gauge. If this is the case a core sample can be taken from the snow on the snow board in order to find out the liquid content of the new snow.
- Core samples of new snow are not required, however you should do this when the amount of snow in the gauge is not representative of what fell on the ground.



Measuring The Water Content Of The Snow From The Snow Board

Goal: Determine how much liquid is in the new snow

- In order to obtain a core sample turn the empty outer cylinder of your gauge upside down on your snowboard.
- Slide a thin, flat object under the core sample in the gauge.
- Carefully lift and flip the gauge.
- Now you can melt the snow the same as you normally would. This value will be to the nearest hundredth of an inch.
- If your original gauge catch was not accurate, you can put your water melted from the core as the daily precipitation amount.
- Please include this information in the comments section.

Water melted from core is required as the daily precipitation

The screenshot shows a web form titled "My Data Entry : Daily Precipitation Report Form". It includes a "Submit" button and a "Reset" button. The form contains the following fields and values:

- Station Number : OH-CN-6
- Station Name : Wilmington 3.6 W
- Observation Date : 2/12/2018
- Observation Time : 7:00 PM
- Rain and Melted Snow : 0.21 in.
- New Snowfall : 3.6 in.
- Melted value from core : 0.21 in.
- Total Snow and Ice on Ground : 4.5 in.
- Melted value from gauge : NA in.

Red arrows point from the text boxes at the bottom to the "Rain and Melted Snow" field and the "Melted value from gauge" field.

Include amount melted from gauge in comments

5) Measuring The Water Content Of The Snow From The Ground

**Goal: Determine how much liquid is in the new and old snow
(Snow Water Equivalent)**

- Core samples taken from the ground can provide valuable information for National Weather Service offices and River Forecast Centers! It provides information on how much water is “on the ground” that can potentially run off into rivers and streams.



- SWE Mondays! Although core samples of snow on the ground would be appreciated everyday, we realize this takes time and therefore Mondays have been designated as SWE Mondays. If possible, please report SWE values on Monday if applicable.

Measuring The Water Content Of The Snow From The Ground

**Goal: Determine how much liquid is in the new and old snow
(Snow Water Equivalent)**

- In order to take a core sample of snow on the ground find a good spot free of drifting and melting.
 - Push the gauge upside down in the snow to cut a core.
 - Slide a thin, flat object under the core sample and the gauge
 - Carefully lift and flip the gauge.
 - Now you can melt the snow the same as you normally would.
- This value will be to the nearest hundredth of an inch.
- Record this value in your daily precipitation report under “total snow and ice on the ground” and “melted value from core to the nearest hundredth”



Let's Review Melting Snow

Goal: Determine how much liquid is in the snow

1. Measure and add warm water.



2. Measure entire sample.



3. Math skills!



Tube full	0.59
- Water added	0.50
<hr/>	
Final reading	0.09

Importance of Melting Snowfall

THE 10:1 MYTH

Do NOT estimate snowfall by converting the liquid in your rain gage to a snowfall amount!

- The adage that *“one inch of rain equals 10 inches of snow”* is a myth!
- The snow/water equivalent ratio is dependent on many factors, not just surface air temperature.
- Snow to water ratios can vary from 8:1 or less to 20:1 or more!





Measuring and Reporting Sleet and Freezing Rain



- Sleet is measured just like snow.
 - In addition to reporting it as new snow and snow on the ground if applicable, also put a note in the comments sections saying that sleet occurred.
- Freezing rain is measured like rain.
 - Melt and measure what is in the gauge and report as rain.
 - In the comments section note that freezing rain occurred and how much ice accretion had occurred. Measure how much ice is on the ground or branches. $(\text{Left Side} + \text{Right Side}) / 2$
 - Report the total depth of freezing rain remaining on the ground at time of observation and enter that in the 'total snow on ground' column. Make a note in your comments section so that we know it is freezing rain.



Measuring and Reporting Mixed Precipitation

- Just do the best you can!
- Water content in the gauge is reported as the daily precipitation.
- Report un-melted content on the snow board and ground the same as you would with just snow.
 - New snow in the past 24 hours
 - Total snow on the ground at observation



Measuring and Reporting Hail

- Use a standard ruler and measure the diameter of the hail stone.



- Hail reports are extremely important to National Weather Service Meteorologists and go straight to NWS meteorologists.
- Your reports can help them issue or verify warnings, helping to protect lives and property.
- Report using the CoCoRaHS Website- this is just as useful as calling it in.
- Don't wait until your standard reporting time, report it in as soon as you can safely do so!

Typical Hail References

Hail is typically referenced to coins and sports equipment!

0.25 inch Pea Size

0.50 inch Mothball or Grape Size

0.75 inch Penny Size

0.88 inch Nickel Size

1.00 inch (**Severe Criteria**) Quarter Size

1.25 inch Half Dollar Size

1.50 inch Walnut or Ping Pong Ball Size

1.75 inch Golf Ball Size

2.00 inch Hen Egg Size

2.50 inch Tennis Ball Size

2.75 inch Baseball Size

3.00 inch Teacup Size

4.00 inch Grapefruit Size

4.50 inch Softball Size

Hail Safety

- Hail reports are very important, but no report is worth risking your safety.
- **NEVER** collect hail stones while it is still hailing.
- **ALWAYS** remember lightning safety!
- Use your best judgment...your health and safety are number 1 !



Report Types

Daily Precipitation Report

Multi-Day Precipitation Report

Hail Report

Significant Weather Report

Monthly Zeros

Condition Monitoring Report

Soil Moisture

FROST Reports



CoCoRaHS Website

www.cocorahs.org

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

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

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

Main Menu

- Home
- About Us
- Join CoCoRaHS
- Contact Us
- Donate

Resources

- FAQ / Help
- Education
- Training Slide-Shows
- Videos
- Condition Monitoring
- Evapotranspiration
- Soil Moisture
- Volunteer Coordinators
- Hail Pad
- Distribution/Drop-off
- Help Needed
- Printable Forms
- The Catch
- Message of the Day
- Publications
- CoCoRaHS Blog
- Web Groups
- State Newsletters
- Master Gardener Guide
- State Climate Series
- March Madness
- WxTalk Webinars
- Sponsors
- Links
- CoCoRaHS Store

Who uses CoCoRaHS Observations?

Reports received today 2/11/2018 as of 2:23 PM EST

Daily	Multi-day	SigWx	Hail	Condition	ET
7,552	131	9	1	100	8

Daily Precipitation (inches x.xx)
USA
2/11/2018

Things to know about...

- Rain
- Hail
- Snow

Download on the App Store

ANDROID APP ON Google Play

CoCoRaHS WxTalk Webinar Series

Purchase an official CoCoRaHS 4" Rain Gauge
"The official CoCoRaHS Rain Gauge supplier"

WEATHERYOURWAY.COM
Fast, Friendly service

My Data Entry : Daily Precipitation Report Form

For observations spanning more than 24 hours, please use the [multiple day accumulation report](#)

Precipitation Report Form [Submit] [Reset]

Station Number : OH-CN-6

Station Name : Wilmington 3.6 W

Denotes Required Field

2/11/2018 *Observation Date

7:00 PM *Observation Time

0.00 in *Rain and Melted Snow to the nearest hundredth inch that has fallen in the gauge during the past 24 hours, or T for trace, or NA for unknown.

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

New Snowfall

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

NA in Melted value from core to the nearest hundredth

Total Snow and Ice on Ground at Observation Time

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

NA in Melted value from core to the nearest hundredth

Duration Information

If a time is unknown or the storm has not ended leave it blank.

Precipitation Began [] AM [] PM

Precipitation Ended [] AM [] PM

Heaviest Precipitation Began [] AM [] PM

Heaviest Precipitation Lasted [] minutes

These times are: Select Time Accuracy

Daily Precipitation Report

Rain and water content
of melted snow and ice
that fell in the last 24
Hours

Comments

Depth of new snow in the
last 24 hrs on snowboard.

Melted core from
snowboard (optional)

Total depth of snow on
the ground (new + old)

Melted core from ground
(optional)

Help button

My Data Entry : Daily Precipitation Report Form

For observations spanning more than 24 hours, please use the [multiple day accumulation report](#).

Precipitation Report Form Submit Reset

Station Number : OH-CN-6
Station Name : Wilmington 3.6 W

* Denotes Required Field

Observation Date
Observation Time
Rain and Melted Snow to the nearest hundredth inch that has fallen in the gauge during the past 24 hours, or **T** for trace, or **NA** for unknown.
Observation Notes: (This will be available to the public)

New Snowfall

in. Accumulation of new snow in inches to the nearest **tenth**
 in. Melted value from core to the nearest **hundredth**

Total Snow and Ice on Ground at Observation Time

in. Depth of total snow and ice (new and old) in inches to the nearest **half inch**
 in. Melted value from core to the nearest **hundredth**

Duration Information

If a time is unknown or the storm has not ended leave it blank.

Precipitation Began ☐ AM ☐ PM
Precipitation Ended ☐ AM ☐ PM
Heaviest Precipitation Began ☐ AM ☐ PM
Heaviest Precipitation Lasted minutes
These times are: Select Time Accuracy

Additional Information

Any Flooding? Select a Flooding Value
☐ Yes ☐ No **Did you record hourly precipitation (or other detailed time increments) for this storm?** If yes, CoCoRaHS personnel may request a copy of this data later, so please save it.

Submit Data Reset

Enter My New Reports

- Daily Precipitation
- Multi-Day Accumulation
- Hail
- Significant Weather
- Monthly Zeros
- Condition Monitoring Report
- Soil Moisture

FROST Reports

- Frost
- Optics
- Snowflake
- Thunder

List/Edit My Reports

- Daily Precipitation
- Multi-Day Accumulation
- Hail
- Significant Weather
- Condition Monitoring Report
- Soil Moisture

FROST Reports

- Optics
- Frost
- Snowflake
- Thunder

Multi-Day Accumulation Report

Click here to access the multi-day accumulation report

You can even enter information after you've been away for several days. Use this form for the days your have been away instead of the daily precipitation form.

Enter My New Reports

- [Daily Precipitation](#)
- [Multi-Day Accumulation](#)
- [Hail](#)
- [Significant Weather](#)
- [Monthly Zeros](#)
- [Condition Monitoring Report](#)
- [Soil Moisture](#)

FROST Reports

- [Frost](#)
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List/Edit My Reports

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FROST Reports

- [Optics](#)

Multiple Day Accumulation Form Submit Data Reset

Station Number : OH-CN-6

Station Name : Wilmington 3.6 W

2/15/2019 First day of accumulation period. This day should be one day after your last daily report or one day after the End Date of the last multi-day report.

2/19/2019 Date the rain gauge was emptied.

7:00 PM Time the rain gauge was emptied.

☒ Yes ☐ No Report was taken at registered location?

0.24 in. Multi-Day Precipitation (rain and melted snow, to the nearest hundredth of an inch), or T for trace, or NA for unknown. Information about snowfall should be included in the comments.

T in. Total Depth of Snow on Ground (to the nearest tenth of an inch)

in. Water content of core sample (The amount of water present in a core sample of the total depth of snow on the ground, to the nearest hundredth of an inch)

Notes

I was away and looked at my gauge when I got back.

Submit Data Reset

Hail Report

Click here to access
hail report

-Goes directly to NWS
forecasters real time.
-Take report and
submit when you can
safely do so, do not
wait until observation
time.

Enter My New Reports

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- Monthly Zeros
- Condition Monitoring Report
- Soil Moisture

FROST Reports

- Frost
- Optics
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- Thunder

List/Edit My Reports

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FROST Reports

- Optics
- Frost
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- Thunder

Hail Report Form
Station Number : OH-CN-6
Station Name : Wilmington 3.6 W
* Denotes Required Field
Date of Hail Storm 2/12/2018
Time Hail Storm Began PM
Report was taken at registered location? ☒ Yes ☐ No
Size of hailstones
Smallest: Not Selected
Average: Not Selected
Largest: Not Selected
Hail Lasted
 Minutes This time is accurate within Select Accuracy
Hailfall was: ☒ Continuous ☐ Intermittent
Hailstones were:
(Check all that apply)
☐ Hard ☐ Soft ☐ Mixed (Hard & Soft) ☐ Clear Ice ☐ White Ice
Was there more rain than hail? ☐ Yes ☒ No
Hail Started:
☐ Before rain ☐ After rain ☐ Same time as rain
Largest Hail Started
☐ Before smaller hail ☐ After smaller hail ☐ Same time as smaller hail
Damage?
If the storm caused damage, please specify. (Check all that apply)
☐ no damage
☐ minor leaf damage
☐ shredded leaves
☐ dents in cars
☐ damaged shingles
☐ broken house windows
☐ broken car windows
What angle did the hail fall most of the time? Select Angle
Hail pad information:
Number of indentations on pad :
Average distance between hailstone indentations on your pad.
 inches apart.
If this is less than 1/4 inch, tell us the depth of the hail on the ground.
 depth of hail on ground in inches.
Was any hail preserved? ☐ Yes ☒ No

Significant Weather Report

Click here to access the significant weather report

- Goes directly to NWS forecasters real time.
- Take report and submit when you can safely do so, do not wait until observation time.
- No strict definition, but good guidance is greater than an inch of rain in an hour or flooding is occurring. For snow, one inch or more falling in an hour and/or if your total snowfall at the end of the event is greater than four inches. You can put freezing rain of a tenth of an inch or greater in the comments section.

My Data Entry : Significant Weather Report Form

Enter My New Reports

- [Daily Precipitation](#)
- [Multi-Day Accumulation](#)
- [Hail](#)
- [Significant Weather](#)
- [Monthly Zeros](#)
- [Condition Monitoring Report](#)
- [Soil Moisture](#)

FROST Reports

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List/Edit My Reports

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Notification:

- Use this form to report heavy rain or snow that has just fallen, or is still falling.

Significant Weather Report [Submit Data](#) [Reset](#)

Station Number : OH-CN-6

Station Name : Wilmington 3.6 W

* Denotes Required Field

Observation Date 2/12/2018

Observation Time PM

Time duration that the report covers Minutes

Rain

in. **New Rain and Melted Snow that has fallen during the report duration, in inches to the nearest hundredth**

in. **Total Precipitation, rain and melted snow, since storm began, in inches to the nearest hundredth**

Snow

in. **Depth of New Snow that has fallen during the report duration, in inches to the nearest tenth**

in. **Total depth of snow and ice on ground at the time of this observation to nearest half inch**

Additional Information

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

Was There Flooding?

☐ No

If Yes, how severe?

☐ Minor (typical). Street or field flooding.

☐ Unusual street or field flooding (only see this every few years)

☐ Severe Flooding

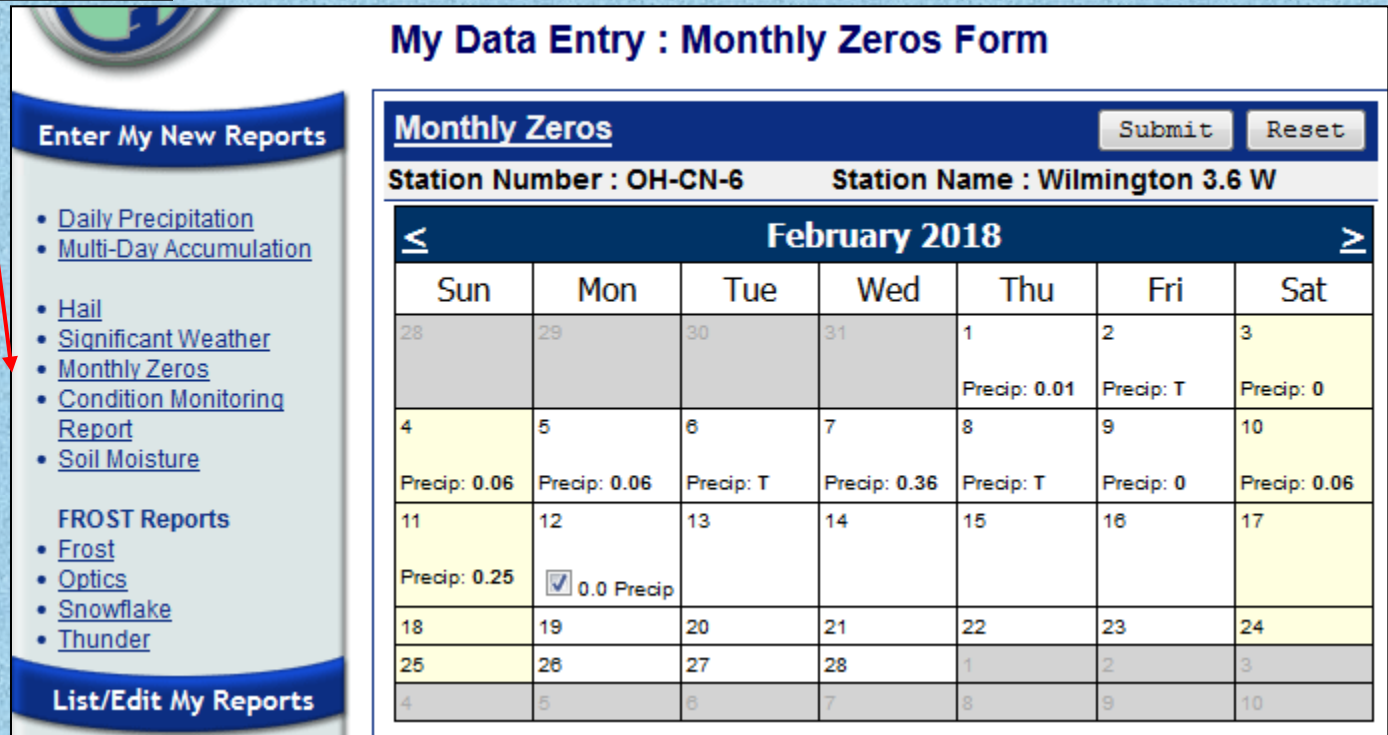
☐ Extreme (never seen it this bad before)

Observation Notes (This will be available to the public)

[Submit Data](#) [Reset](#)

Monthly Zeros Report

Click here to access the
monthly zeros report



My Data Entry : Monthly Zeros Form

Monthly Zeros

Station Number : OH-CN-6 Station Name : Wilmington 3.6 W

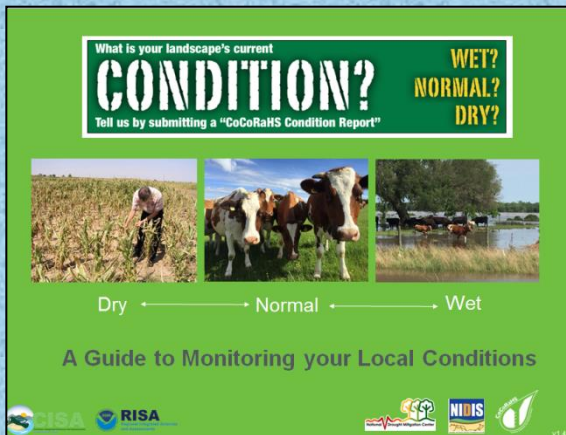
February 2018								
≤	Sun	Mon	Tue	Wed	Thu	Fri	Sat	≥
	28	29	30	31	1	2	3	
					Precip: 0.01	Precip: T	Precip: 0	
	4	5	6	7	8	9	10	
	Precip: 0.06	Precip: 0.06	Precip: T	Precip: 0.36	Precip: T	Precip: 0	Precip: 0.06	
	11	12	13	14	15	16	17	
	Precip: 0.25	<input checked="" type="checkbox"/> 0.0 Precip						
	18	19	20	21	22	23	24	
	25	26	27	28	1	2	3	
	4	5	6	7	8	9	10	

You can go back in and enter days of zero precipitation on one simple to use page

Condition Monitoring Report

Click here to access the condition monitoring report

You can enter how dry/wet conditions are impacting your activities and you. Submitted on a regular (weekly, biweekly, monthly) basis to share info about the effects of local precipitation on the environment and society.



My Data Entry : Condition Monitoring Report Form

Condition Monitoring Report Form [Submit Data](#) [Reset](#)

Station Number : OH-CN-6
Station Name : Wilmington 3.6 W

Condition monitoring reports are submitted on a regular (weekly, biweekly, monthly) basis to share information about the effects of local precipitation on the environment and society. By submitting reports on a regular basis, you create a baseline to see change through time, such as seasonal differences or changes caused by more or less precipitation. Please refer to the [Condition Monitoring training slide show](#) for more information.
* indicates required field

Report Date *
2/12/2018

Condition Scale Bar [More information on the scale bar](#) [Clear Scale Bar](#)

Severely Dry	Moderately Dry	Mildly Dry	Near Normal	Mildly Wet	Moderately Wet	Severely Wet
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Description
Please provide a description of how dry, normal or wet conditions are affecting you, your livelihood, your activities, etc. *

Report Categories
Please check at least one report category. If you check a category, please provide supporting information in the description. [More information on condition monitoring categories.](#)

- ☐ General Awareness
- ☐ Agriculture
- ☐ Business & Industry
- ☐ Energy
- ☐ Fire
- ☐ Plants & Wildlife
- ☐ Relief, Response & Restrictions
- ☐ Society & Public Health
- ☐ Tourism & Recreation
- ☐ Water Supply & Quality

[Submit Data](#) [Reset](#)

Soil Moisture

Click here to access the
condition monitoring
report

COCORAHS SOIL MOISTURE MONITORING

CoCoRaHS Soil Moisture Monitoring

We measure rainfall every day, but how much of that rain is soaking in? CoCoRaHS is now offering a soil moisture reporting option. It's more time and labor-intensive than measuring rain, so it won't be for everyone, and that is okay. It is a great opportunity to play outside, get your hands dirty, and learn something!

The materials cost approximately \$50. Anybody with a little bit of land, and access to an oven is welcome to join.

Take a look at the requirements:
[CoCoRaHS Soil Moisture Protocol](#)

To report your findings:
<https://cocorahs.org/Admin/MyDataEntry/SoilMoistureReport.aspx>

To view your submissions:
<https://www.cocorahs.org/ViewData/ListSoilMoistureReports.aspx>

Why participate?

By taking soil moisture measurements for CoCoRaHS, you will have the opportunity to be a part of the calibration/validation process for NASA's Soil Moisture Active/Passive (SMAP) Satellite, aid in regional drought monitoring, and help close our understanding of the water cycle in your area.

If you have any questions about if this is right for you, please send an email to:
peter.goble@colostate.edu, or noah.newman@colostate.edu

My Data Entry : Soil Moisture Report Form

Soil Moisture Report Form [Submit Data](#) [Reset](#)

Station Number : OH-CN-6

Station Name : Wilmington 3.6 W

2/12/2018 AM *Observation Date *Observation Time

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

Information about where the sample was taken

Distance from previous sample in meters:

Is the land irrigated? ☐ Yes ☒ No

Did you begin a new row? ☐ Yes ☒ No

Soil Samples

Depth	Soil Type	Weight Before Drying (grams)	Volume of Rocks and Roots Removed (cm3)	Weight After Drying (grams)
0-2"	Select Soil Type...	<input type="text"/>	<input type="text"/>	<input type="text"/>
7-9"	Select Soil Type...	<input type="text"/>	<input type="text"/>	<input type="text"/>

[Submit Data](#) [Reset](#)

Resources

- [FAQ / Help](#)
- [Education](#)
- [Training Slide-Shows](#)
- [Videos](#)
- [Condition Monitoring](#)
- [Evapotranspiration](#)
- [Soil Moisture](#)

Main Page-Resources

FROST Reports

Click here to access the
FROST reports

Enter My New Reports

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- [Condition Monitoring Report](#)
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- [List/Edit My Reports](#)

Frost Report Form [Submit Data](#) [Reset](#)

Station Number : OH-CN-6
Station Name : Wilmington 3.6 W

* Denotes Required Field
2/19/2019 * **Observation Date** ?
7:00 AM * **Observation Time** ?
☒ Yes ☐ No **Report was taken at registered location?**

Percent coverage of frost on surface:

☐ No frost coverage
☐ Less than 25% coverage
☐ 25%-50% coverage
☐ 50%-75% coverage
☐ Greater than 75% coverage

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

[Submit Data](#) [Reset](#)

Optics Report Form [Submit Data](#) [Reset](#)

Station Number : OH-CN-6
Station Name : Wilmington 3.6 W

* Denotes Required Field
2/12/2018 * **Observation Date** ?
Not Selected * **Observation Time of Day** ?
☒ Yes ☐ No **Report was taken at registered location?**

What did you see?

☐ 22° Halo ☐ Sundog ☐ Corona ☐ Rainbow

Did you see a double rainbow? ☐ Yes ☐ No
Click [here](#) to see optical effects.

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

[Submit Data](#) [Reset](#)

Snowflake Report Form [Submit Data](#) [Reset](#)

Station Number : OH-CN-6
Station Name : Wilmington 3.6 W

* Denotes Required Field
2/12/2018 * **Observation Date** ?
7:00 AM * **Observation Time** ?
☒ Yes ☐ No **Report was taken at registered location?**

Snowflake shapes were predominantly:

☐ Stellar Dendrites ☐ Sectoral Plates ☐ Hollow Columns ☐ Needles
☐ Spatial Dendrites ☐ Capped Columns ☐ Rimed Crystals ☐ Other

If present, select up to two (2) other snowflake shapes:

☐ Stellar Dendrites ☐ Sectoral Plates ☐ Hollow Columns ☐ Needles
☐ Spatial Dendrites ☐ Capped Columns ☐ Rimed Crystals ☐ Other

Click [here](#) see snowflake types

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

[Submit Data](#) [Reset](#)

Thunder Report Form [Submit Data](#) [Reset](#)

Station Number : OH-CN-6
Station Name : Wilmington 3.6 W

* Denotes Required Field
2/12/2018 * **Observation Date** ?
☒ Yes ☐ No **Report was taken at registered location?**

Number of Thunder Claps

For information about counting thunderclaps, click [here](#).

Morning (12AM-12PM)
 Afternoon (12PM-5PM)
 Evening (5PM-9PM)
 Night (9PM-12AM)

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







































[Submit Data](#) [Reset](#)

Re-entering An Erroneous Report

Editing Your Report

My Data Entry : List My Daily Precipitation Reports US Units

Showing 1 - 50 of 2902 Records. <Back Page 1 Next>

Date ▲	Time	Station Number	Station Name	Total Precip in.	New Snow in.	Total Snow in.	State	County	Actions	Maps
2/11/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	0.25	0.0 NA	0.0 NA	OH	Clinton	  Classic New	
2/10/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	0.06	0.0 NA	0.0 NA	OH	Clinton	  Classic New	
2/9/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	0.00	0.0 NA	T NA	OH	Clinton	  Classic New	
2/8/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	T	T NA	T NA	OH	Clinton	  Classic New	
2/7/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	0.36	0.4 NA	T NA	OH	Clinton	  Classic New	
2/6/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	T	T NA	T NA	OH	Clinton	  Classic New	
2/5/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	0.06	1.5 NA	1.0 NA	OH	Clinton	  Classic New	
2/4/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	0.06	0.2 NA	0.0 NA	OH	Clinton	  Classic New	
2/3/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	0.00	0.0 NA	0.0 NA	OH	Clinton	  Classic New	
2/2/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	T	0.1 NA	T NA	OH	Clinton	  Classic New	
2/1/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	0.01	T NA	T NA	OH	Clinton	  Classic New	
1/31/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	0.00	0.0 NA	0.0 NA	OH	Clinton	  Classic New	
1/30/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	T	T NA	T NA	OH	Clinton	  Classic New	
1/29/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	0.01	0.2 NA	T NA	OH	Clinton	  Classic New	
1/28/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	0.01	0.0 NA	0.0 NA	OH	Clinton	  Classic New	
1/27/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	0.44	0.0 NA	0.0 NA	OH	Clinton	  Classic New	
1/26/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	0.00	0.0 NA	0.0 NA	OH	Clinton	  Classic New	
1/25/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	T	T NA	0.0 NA	OH	Clinton	  Classic New	
1/24/2018	7:00 PM	OH-CN-6	Wilmington 3.6 W	0.02	0.3 NA	T NA	OH	Clinton	  Classic New	

Enter My New Reports

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- [Hail](#)
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- [Monthly Zeros](#)
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- FROST Reports**
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Other Frequently Asked Questions

- Do I report morning dew that has collected in my gauge as precipitation?
 - No. That is not precipitation, but you may note the dew in the comments.



Frequently Asked Questions

- I have an automated weather station with a rain gauge. Can I use that instead of the CoCoRaHS gauge?
 - In order to accurately compare CoCoRaHS reports, all observers **MUST** use the 4 inch CoCoRaHS gauge. Automated rain gauges tend to underestimate a heavy rainfall and do not accurately measure water equivalent of snow. You are welcome to place the automated gauge beside the 4 inch gauge to compare measurements, but report what falls in the 4 inch CoCoRaHS gauge.



Frequently Asked Questions

- Can I file my observations on my mobile device?
 - Yes, a CoCoRaHS app is available for both iPhone and Android Phone

Verizon LTE 2:30 PM

Logout Precip Report Details

CoCoRaHS OH-CN-6
Wilmington 3.6 W
US Units (in)
Precipitation Report

Observation Date 2019-02-19

Observation Time 19:00

Rain/Melted Snow NA

More Details

☐ Trace Precip

Cancel Submit

Report Multi-Day Report History Multi-Day History Other

Verizon 11:23 AM

Back Detail View

New Snow Enter T for Trace

Accumulation (in/cm) NA

Melted Core (in/mm) NA

Total Snow & Ice Enter T for Trace

Depth Total (in/cm) NA

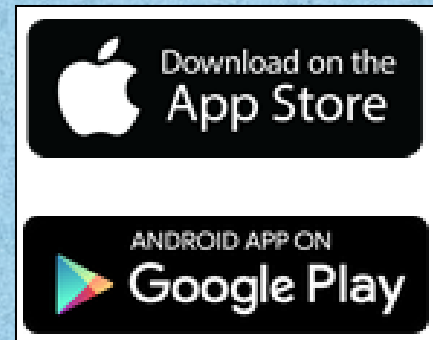
Melted Core (in/mm) NA

Flooding Info

not specified

Additional Notes

optional notes



Frequently Asked Questions

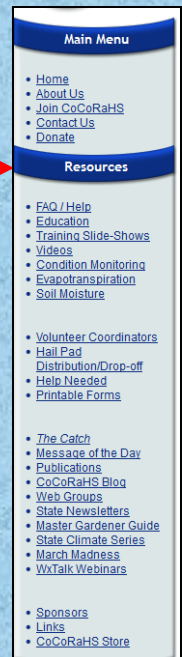
- Where can I go for additional resources?
 - CoCoRaHS has a variety of resources to connect to from its homepage. There are educational YouTube videos, the CoCoRaHS blog, messages of the day, state newsletters, measuring evapotranspiration, and a climate guide for Master Gardeners just to name a few. You can also connect to CoCoRaHS via social media such as Facebook and Twitter.



Resources found on
left hand side of main
page.



Measuring Reference Evapotranspiration **ET_o**
"The 'up' side of the water cycle"



Join the CoCoRaHS Network Family Today!

Sign-up using the CoCoRaHS website and obtain a CoCoRaHS rain gauge.

- Click “Join CoCoRaHS” in the left hand menu or the button on the right hand side.
- You will get an e-mail response with your info.



Have a question?

Ask one of the coordinators!

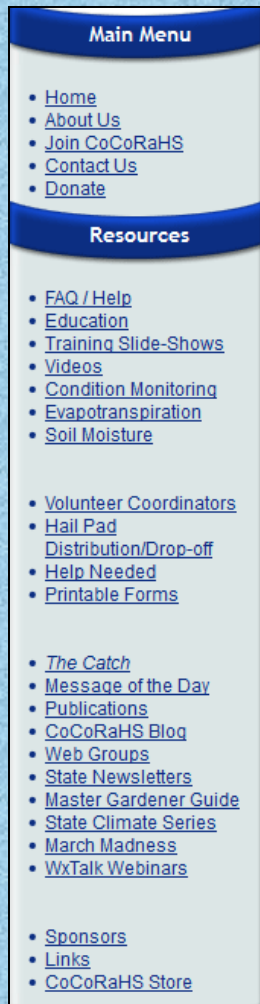
State Coordinator (Ohio)

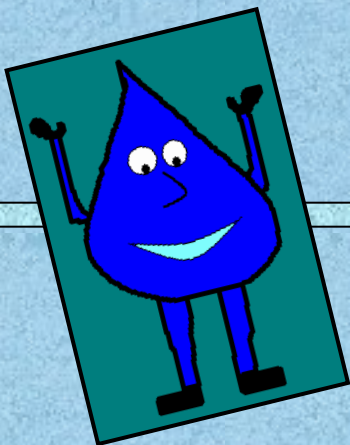
Ashley.Novak@noaa.gov or

Jeffrey Rogers at rogers.21@osu.edu

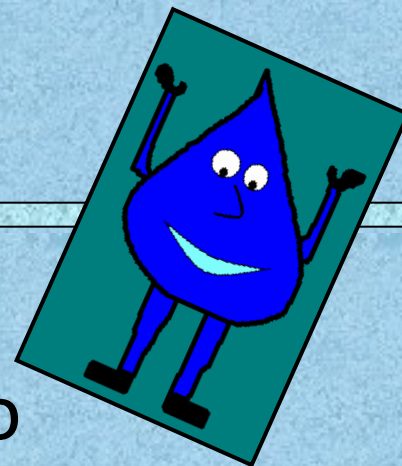
Local National Weather Service

**Regional Coordinators are also listed along
with state coordinators from other states.**





Questions?



Ashley Novak

Co-State Coordinator Ohio

National Weather Service Wilmington, Ohio

Email: Ashley.Novak@noaa.gov

***You are now ready to measure precipitation for the
CoCoRaHS Network! Thank you for being a
volunteer observer!***