



CoCoRaHS

Community Collaborative Rain, Hail & Snow Network

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Introduction to CoCoRaHS

- CoCoRaHS is a non-profit precipitation network made up of volunteers who take daily measurements of precipitation right in their own backyards
- CoCoRaHS utilizes a low-cost rain gauge (around \$30) and an interactive website/app
- Website/app and data are all free to use



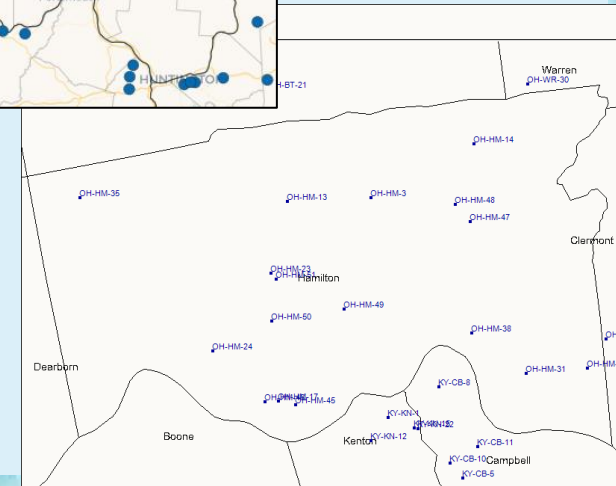
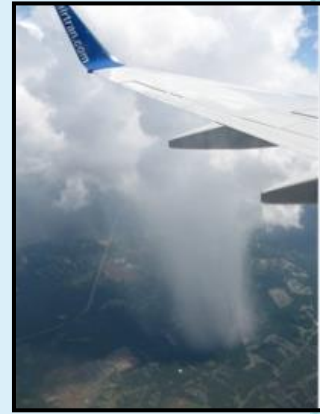
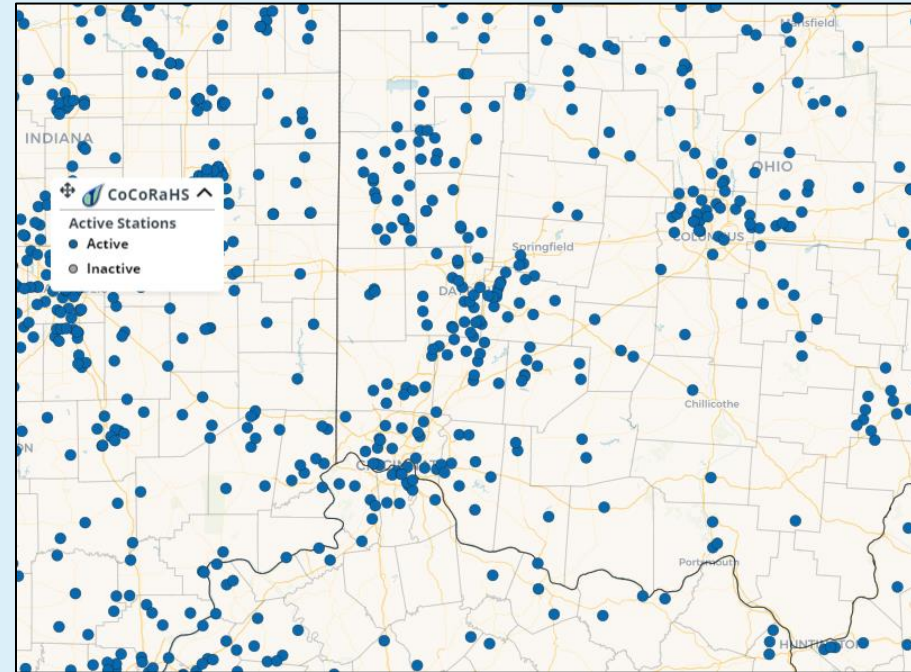
History and Purpose of CoCoRaHS

- Began in 1998 in Colorado in response to devastating flash flood in 1997 with a need for a dense precipitation network since precipitation is highly variable.
- Now observers are present across the country in every state and in other countries as well!
- You can be a part of the mission to save lives!



CoCoRaHS Stations

- Some counties have very few or no observers, while some have several
- Even in areas with several observers, precipitation is highly variable and therefore more observers are appreciated and the data heavily utilized



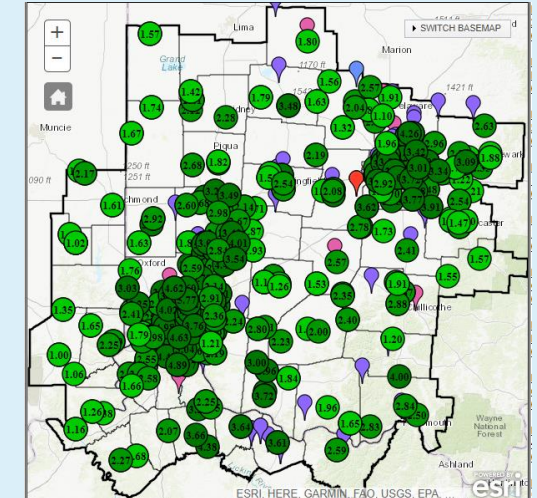
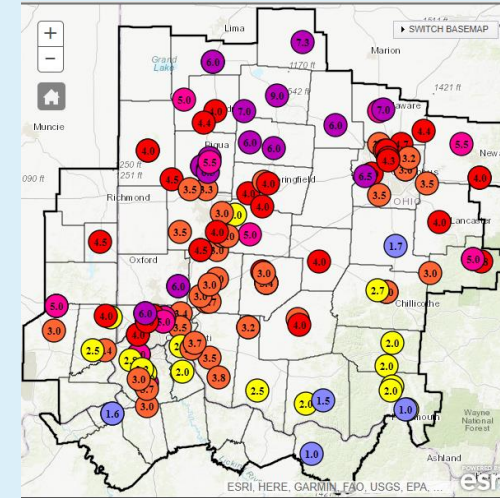
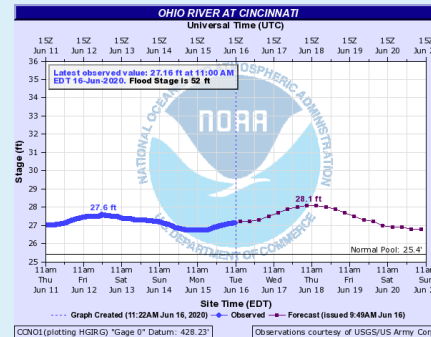
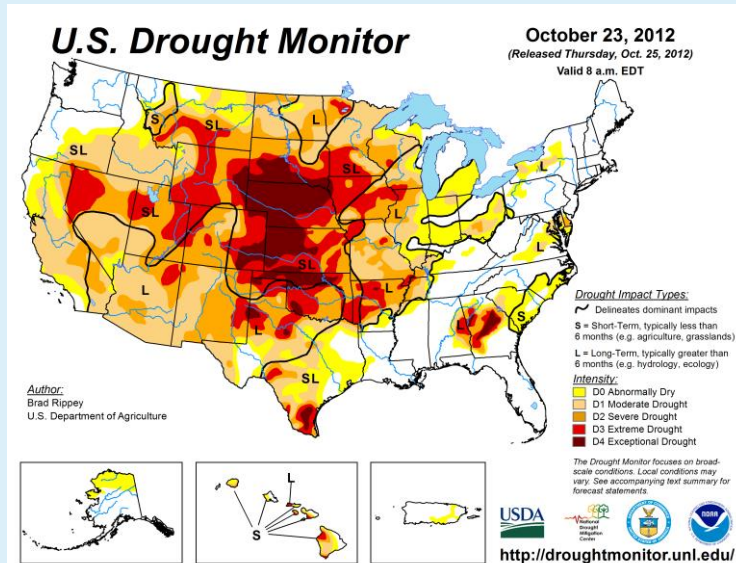
Many People and Groups Rely on CoCoRaHS

- Teachers and Students
- Media
- Farmers
- Emergency Managers
- FEMA declarations for disaster assistance
- Turf and Landscape Professionals
- Hydrologists
- City Utilities
- Insurance adjusters
- Engineers
- Mosquito control
- Outdoor & Recreation
- And many more!



Uses by NWS Meteorologists and Hydrologists

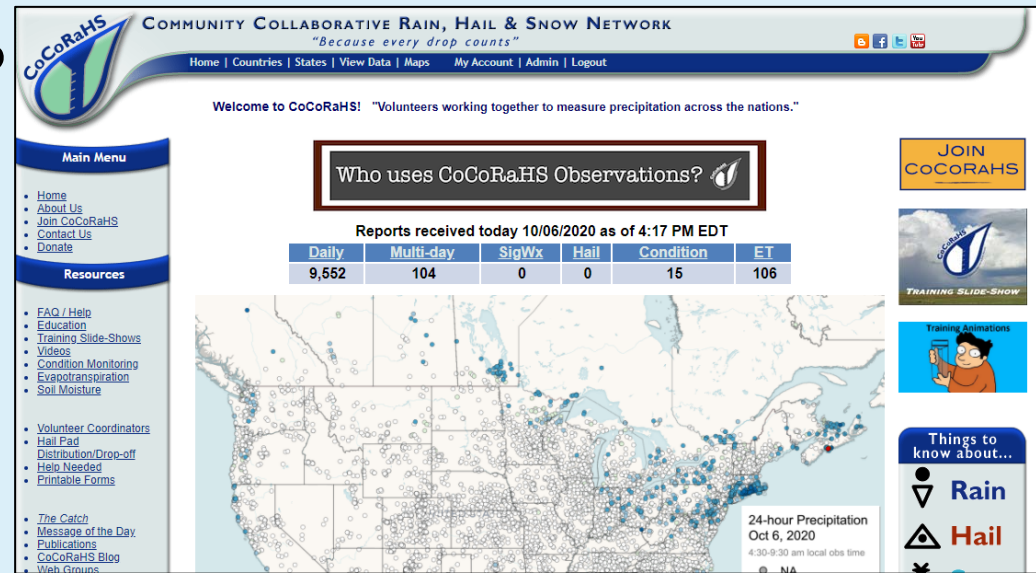
- Aid in issuing and verifying life saving warnings
- Increases climatological network
- Better tracking of wet/dry areas
- River forecasting
- Research
- Improved preparedness/mitigation working with partners



The U.S. Drought Monitor is produced through a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration.

CoCoRaHS Data and Viewing

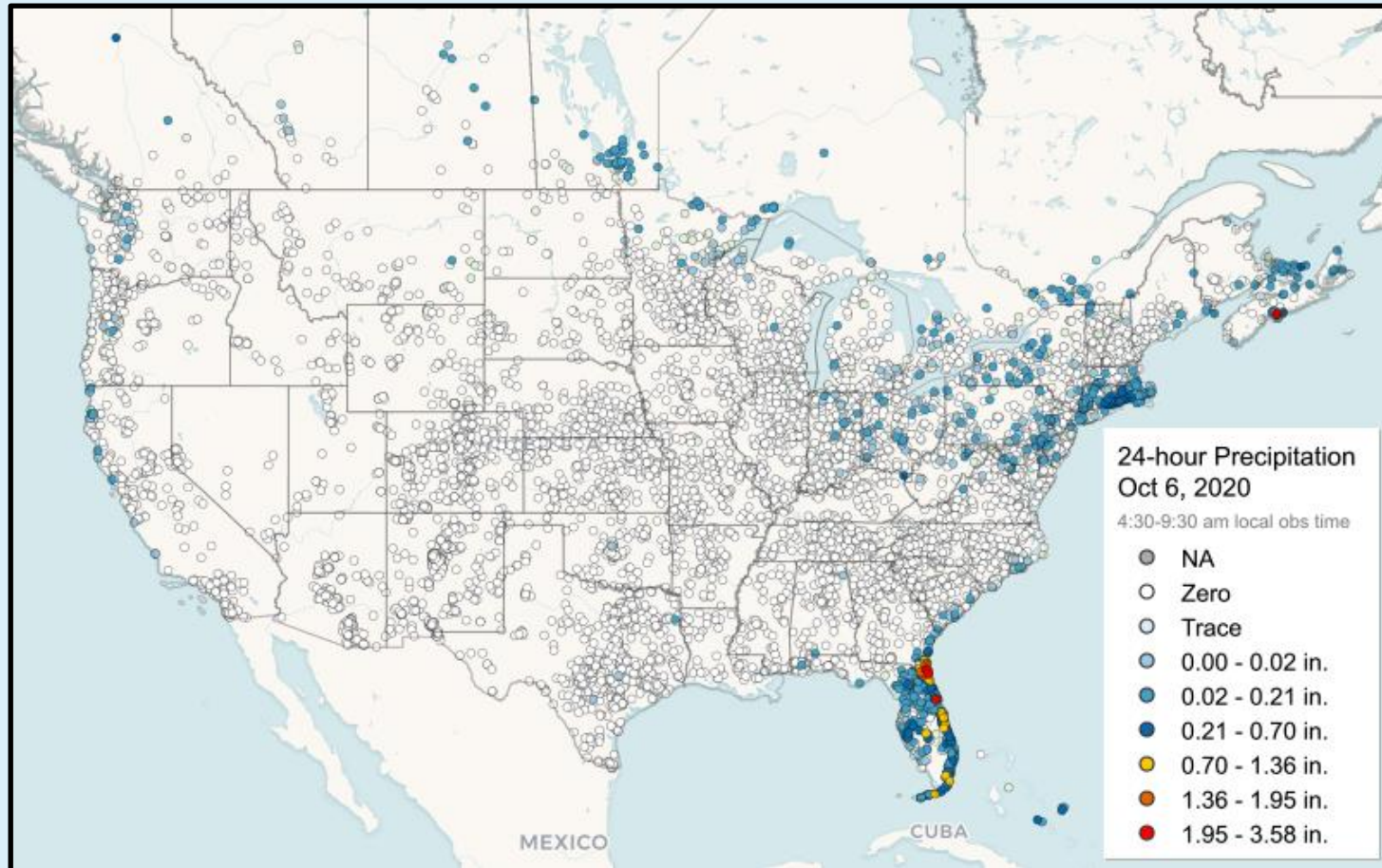
- Observations can be submitted via web (www.CoCoRaHS.org) or app and viewable within minutes
- Types of observations:
 - 24 hour daily precipitation (rain, snow, etc)
 - Real time occurrences (hail, significant precip)
 - Condition monitoring (drought etc)
 - Other reports (frost, thunder, etc)



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	

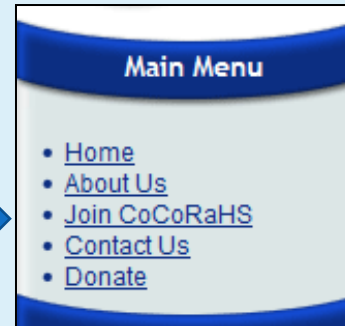
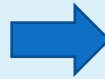
The screenshot shows the CoCoRaHS mobile app interface. At the top, the status bar shows "Verizon LTE" and "2:30 PM". The app header includes "Logout", "Precip Report", and "Details". The main content area displays the CoCoRaHS logo and the station identifier "OH-CN-6" with the address "Wilmington 3.6 W". Below this, it says "US Units (in)" and "Precipitation Report". The form includes fields for "Observation Date" (2019-02-19), "Observation Time" (19:00), and "Rain/Melted Snow" (NA). There is a "Trace Precip" toggle switch and buttons for "Cancel" and "Submit". At the bottom, there are icons for "Report", "Multi-Day Report", "History", "Multi-Day History", and "Other".

CoCoRaHS Data and Viewing



How to Join

- Computer or app access
- Fill out quick application form on CoCoRaHS website
- CoCoRaHS standard rain gauge
 - Automated gauges are not utilized b/c they can underestimate heavy rain, have a hard time with snow, and they are not used in order to make sure everyone is utilizing the same gauge
- Snowboard/measuring stick



Become a CoCoRaHS Observer

Observer Information	Postal Address
First Name <input type="text"/>	Address <input type="text"/>
Last Name <input type="text"/>	State <input type="text"/>
Home Phone <input type="text"/>	County <input type="text"/>
Day Phone <input type="text"/>	City <input type="text"/>
Email <input type="text"/>	Zip <input type="text"/>

Please Enter
Daily Internet Access: ☐ Yes ☐ No

Station Location Information	Station Address
Station Information: Location Description: (example: Gauge located at the 3rd house South of Fifth Ave on Vine.) <input type="text"/>	<input type="checkbox"/> Same as Postal Address Address <input type="text"/>
Location Coordinates: (if available) in decimal degrees. Latitude (40.5993) : <input type="text"/>	State <input type="text"/>
Longitude (105.1152) : <input type="text"/>	County <input type="text"/>
	City <input type="text"/>
	Zip <input type="text"/>

Additional Information

How did you find out about CoCoRaHS?

Are you 18 years old or younger? ☐ Yes ☐ No

Age:

Parent or Guardian Name:

Grade:

Rain gauge
You will need a high capacity 4" diameter rain gauge to participate in this network.
<http://www.cocorahs.org/observers/>
☐ I already have this particular type of gauge

Station Number : OH-CN-16

Station Name : Wilmington 1.6 SSE

Gauge Placement and Installation

Preferred



Level and bevel
if you can

Not Preferred



How to Read the Gauge and When to Report

- Read at eye level
- Read the bottom of the meniscus (contact lens)-caused by surface tension
- 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 pretty consistent from day to day.
- It is ok if you can't report everyday!



Your Most Common Observation

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



- Also, dew/fog, while it may accumulate in the gauge this still counts as a 0.00.



Trace (T)



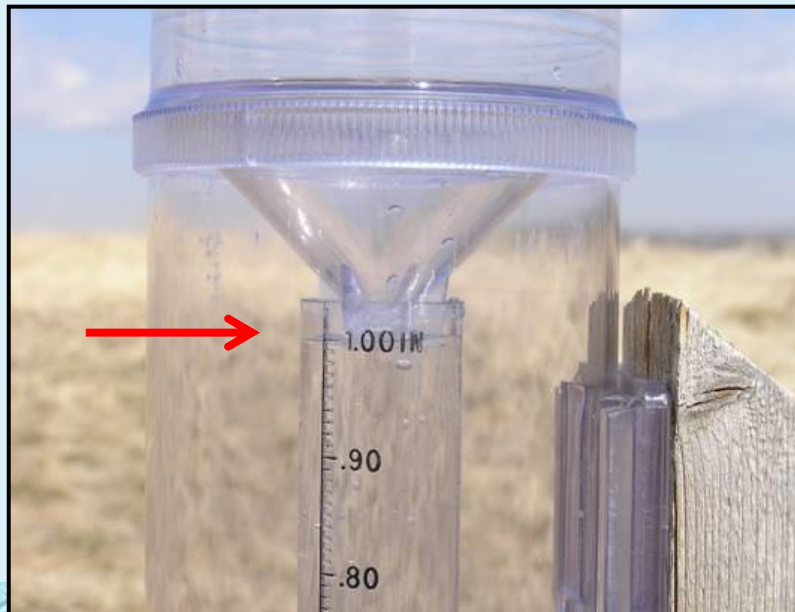
0.04 inch



0.50 inch



1.00 inch



Over an inch



Over an Inch of Precipitation

- 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.
- 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"

Submitting CoCoRaHS



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

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

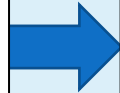
Welcome to CoCoRaHS! "Volunteers working together to measure precipitation across the nations."

Who uses CoCoRaHS Observations?

Reports received today 10/06/2020 as of 4:34 PM EDT

Daily	Multi-day	SigWx	Hail	Condition	ET
9,583	104	0	0	15	106

24-hour Precipitation Oct 6, 2020
4:30-9:30 am local obs time



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

6/16/2020 *Observation Date ?

7:00 PM *Observation Time ?

3.77 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

0 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

0 in. Depth of total snow and ice (new and old) in inches to the nearest tenth ?

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

Logout Precip Report Details

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

Trace Precip

Cancel Submit

Report Multi-Day Report History Multi-Day History Other

Winter Precipitation

- 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.



Additional Winter Tools

- **Snow Stick**- ruler/yard stick, aluminum works best to keep from warping. If you do not have one in tenths of an inch here is a conversion.

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

- **Snow Board**- board or flat surface to measure snow. 2'x2' sheet of plywood painted white works great.
- **Snow Swatter or Spatula**- helps with core samples (more info later)



Winter Precipitation

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

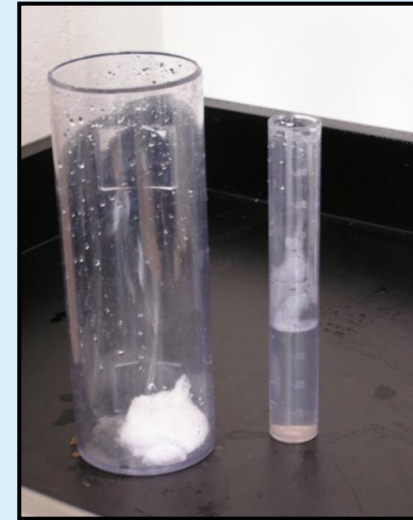
My Data Entry : Daily Precipitation Report Form	
For observations spanning more than 24 hours, please use the multiple day accumulation report .	
Precipitation Report Form Submit Reset	
Station Number : OH-CN-6	
Station Name : Wilmington 3.6 W	
* Denotes Required Field	
2/12/2018	* Observation Date ?
7:00 PM	* Observation Time ?
1 0.21 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) ?	
Precipitation is amount from snow core. Poor gauge catch because of high winds - not representative of what fell. Amount melted from gauge 0.06"	
New Snowfall	
2 3.6 in.	Accumulation of new snow in inches to the nearest tenth ?
3 0.21 in.	Melted value from core to the nearest hundredth ?
Total Snow and Ice on Ground at Observation Time	
4 4.5 in.	Depth of total snow and ice (new and old) in inches to the nearest half inch ?
5 NA in.	Melted value from core to the nearest hundredth ?

1) *Water content of melted snow* – measured to the nearest hundredth and measured with your rain gauge with the goal of determining how much liquid is in the snow (or mix of precipitation)

- Tools: 4 inch CoCoRaHS rain gauge, possible snow swatter
- Remove your gauge from its mounting bracket and bring the gauge inside



- 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 the snow inside it and the other with a carefully measured amount of warm water.
- 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.
- Pour the water back through the funnel into the smaller cylinder. Carefully read the amount in the cylinder. This amount represents the melted snow + the water you added.
- Subtract the amount of tap water you added earlier to get your melted snowfall to the hundredth of an inch.



Tube full 0.71- Water added 0.50 =
Final reading 0.21

Daily Precipitation Form

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

2/12/2018

* Observation Date ?

7:00

PM

* Observation Time ?

0.21

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) ?

Precipitation is amount from snow core. Poor gauge catch because of high winds - not representative of what fell. Amount melted from gauge 0.06"

New Snowfall

3.6

in.

Accumulation of new snow in inches to the nearest tenth ?

0.21

in.

Melted value from core to the nearest hundredth ?

Total Snow and Ice on Ground at Observation Time

4.5

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 ?

2) *Depth of new snow* – measured to the nearest tenth of an inch and measured from snow board using snow stick. The goal of this is to measure snowfall from 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 3.6 inches)
- Sweep the snowboard clean and place on top of snow



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.



Frequently Asked Questions on Snowfall

- **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.

Myth

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!



Daily Precipitation Form

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

2/12/2018

* Observation Date ?

7:00

PM

* Observation Time ?

0.21

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) ?

Precipitation is amount from snow core. Poor gauge catch because of high winds - not representative of what fell. Amount melted from gauge 0.06"

New Snowfall

3.6

in.

Accumulation of new snow in inches to the nearest tenth ?

0.21

in.

Melted value from core to the nearest hundredth ?

Total Snow and Ice on Ground at Observation Time

4.5

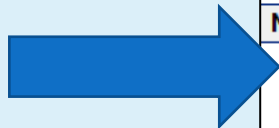
in.

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 ?



3) Core sample from snow board (optional, but encouraged when possible/needed) – measured to the nearest hundredth and measured with gauge

- 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.
- 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.



Daily Precipitation Form

- 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.

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. ?

in.

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** ?

4) *Depth of total snow (new + old)* – measured to the nearest half inch and measured from ground using snow stick. This includes 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 ½” like 4.5)

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



Frequently Asked Questions on Snow Depth

- **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.)



Daily Precipitation Form

My Data Entry : Daily Precipitation Report Form

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

Precipitation Report Form

Station Number : OH-CN-6

Station Name : Wilmington 3.6 W

* Denotes Required Field

***Observation Date** ?

***Observation Time** ?

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.** ?

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New Snowfall

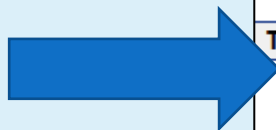
in. **Accumulation of new snow in inches to the nearest tenth** ?

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** ?



5) Core sample from ground (snow water equivalent, again optional, but encouraged...especially on Mondays) – measured to the nearest hundredth and measured with gauge. This helps 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.
- 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.



Let's Review Melting Snow



- Measure and add warm water
- Measure the entire sample
- Math skills

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

Daily Precipitation Form

My Data Entry : Daily Precipitation Report Form

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

Precipitation Report Form

Station Number : OH-CN-6

Station Name : Wilmington 3.6 W

* Denotes Required Field

2/12/2018

* Observation Date ?

7:00

PM

* Observation Time ?

0.21

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) ?

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New Snowfall

3.6

in.

Accumulation of new snow in inches to the nearest tenth ?

0.21

in.

Melted value from core to the nearest hundredth ?

Total Snow and Ice on Ground at Observation Time

4.5

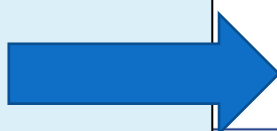
in.

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 ?

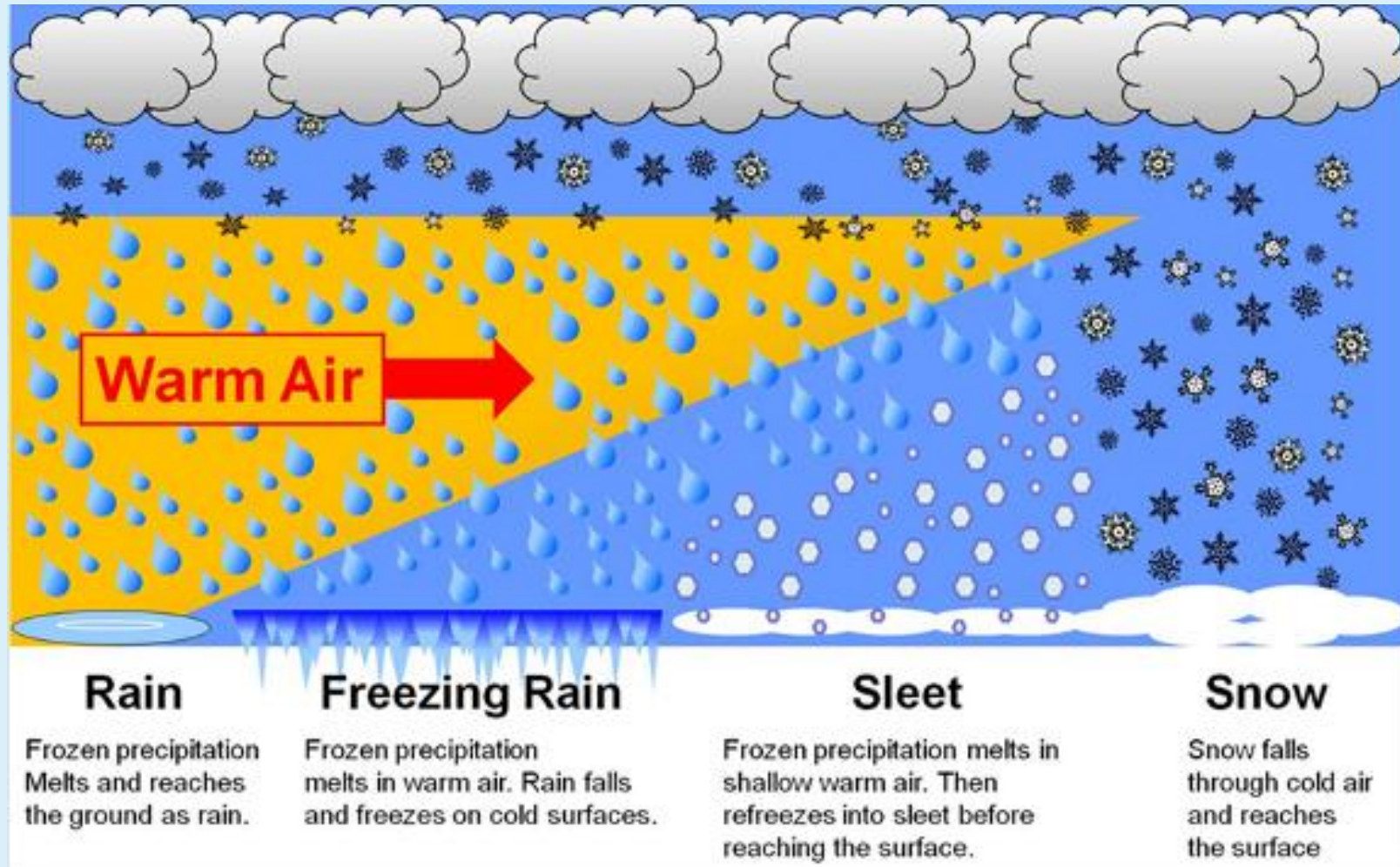


Winter Precipitation FAQ

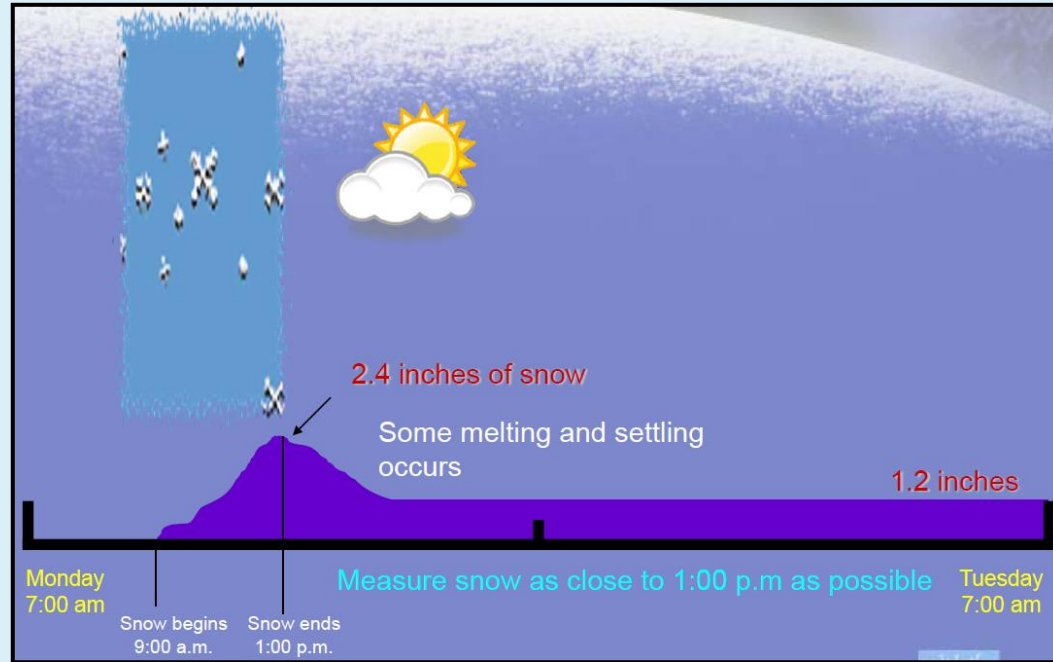


- **How do you measure sleet, freezing rain, and mixed precipitation?**
 - **Sleet** is measured just like snow. In addition to reporting it as new snow and snow on the ground if applicable, also put a note in the comments sections saying that sleet occurred.
 - **Freezing rain** is measured like rain. 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.
 - **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.

Why am I getting that precipitation type?



Winter Precipitation FAQ



- **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)!

Measuring 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!
- 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 !

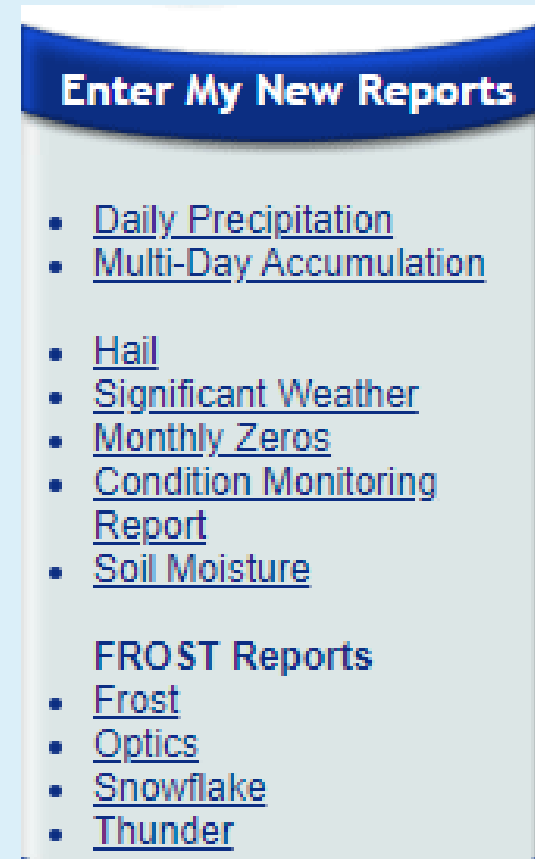


Typical Hail References

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

Report Types on the CoCoRaHS Website

Daily Precipitation
Multi-Day Precipitation
Hail
Significant Weather
Monthly Zeros
Condition Monitoring
Soil Moisture
FROST Reports



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

Observation Date : 2/12/2018
Observation Time : 7:00 PM

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. 0.36 in.

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

New Snowfall

Accumulation of new snow in inches to the nearest tenth 0.6 in.
Melted value from core to the nearest hundredth NA in.

Total Snow and Ice on Ground at Observation Time

Depth of total snow and ice (new and old) in inches to the nearest half inch 0.5 in.
Melted value from core to the nearest hundredth NA in.

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 []

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

[Submit Data] [Reset]

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.

The screenshot shows a web form titled "Multiple Day Accumulation Form" with a "Submit Data" and "Reset" button at the top right. The form contains the following fields and options:

- Station Number :** OH-CN-6
- Station Name :** Wilmington 3.6 W
- Start Date:** A date selector showing 2/15/2019. Description: "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."
- End Date:** A date selector showing 2/19/2019. Description: "Date the rain gauge was emptied."
- Time:** A time selector showing 7:00 PM. Description: "Time the rain gauge was emptied."
- Location:** Radio buttons for "Yes" (selected) and "No". Description: "Report was taken at registered location?"
- Precipitation:** A text input field containing "0.24". Description: "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."
- Snow Depth:** A text input field containing "T". Description: "Total Depth of Snow on Ground (to the nearest tenth of an inch)"
- Water Content:** A text input field. Description: "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:** A large text area for additional comments.

On the left side of the form is a sidebar with two sections:

- Enter My New Reports**
 - Daily Precipitation
 - Multi-Day Accumulation (highlighted with a red arrow)
 - 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

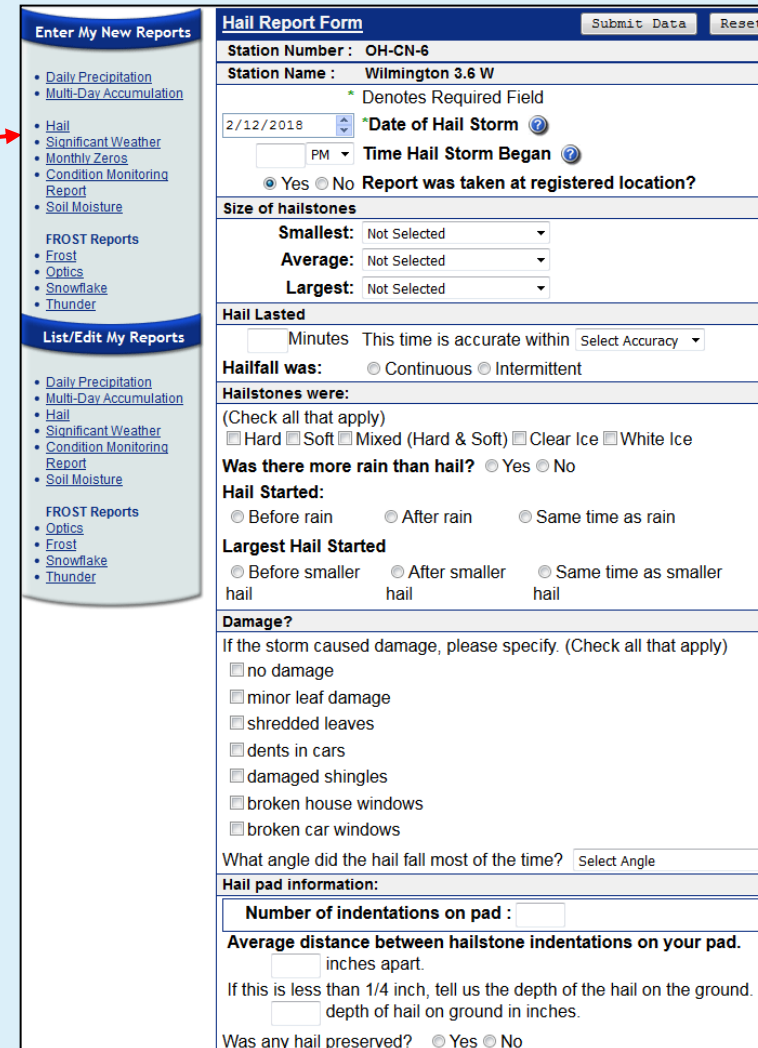
At the bottom of the sidebar, there are "Submit Data" and "Reset" buttons. A red circle highlights the "Multi-Day Accumulation" link in the sidebar and the "0.24" input field in the form. A red arrow points from the "Multi-Day Accumulation" link to the "Notes" field.

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

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

- [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](#)

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

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

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

- [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](#)

Notification:

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

Significant Weather Report

Station Number : OH-CN-6

Station Name : Wilmington 3.6 W

Observation Date 2/12/2018 * Denotes Required Field

Observation Time PM * Denotes Required Field

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)

Monthly Zeros

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

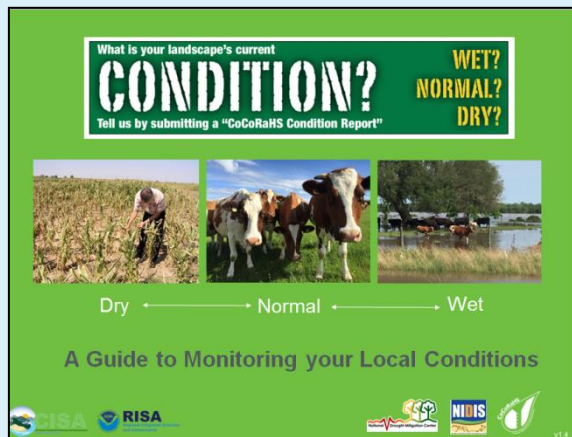
≤	Sun	Mon	Tue	Wed	Thu	Fri	Sat	≥
	28	29	30	31	1	2	3	
					Precip: 0.01	Precip: T	Precip: 0	
	4	5	6	7	8	9	10	
	Precip: 0.06	Precip: 0.06	Precip: T	Precip: 0.36	Precip: T	Precip: 0	Precip: 0.06	
	11	12	13	14	15	16	17	
	Precip: 0.25	<input checked="" type="checkbox"/> 0.0 Precip						
	18	19	20	21	22	23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

* Denotes Required Field

2/12/2018 *Observation Date ?

AM *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...			
7-9"	Select Soil Type...			

[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

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

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

2/19/2019 * Denotes Required Field
*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

2/12/2018 * Denotes Required Field
*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

2/12/2018 * Denotes Required Field
*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

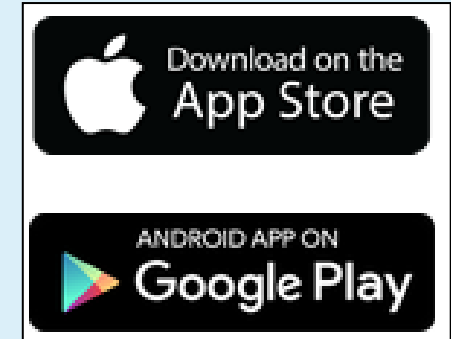
2/12/2018 * Denotes Required Field
*Observation Date ?
☒ Yes ☐ No Report was taken at registered location?

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](#)

CoCoRaHS App



- CoCoRaHS app is available for both iPhone and Android Phone
- You can submit daily precipitation reports, multi-day accumulation reports, view history, edit reports on the history tabs, or go to the CoCoRaHS website.

































A screenshot of the CoCoRaHS app's main screen. The status bar at the top shows "Verizon LTE" and "2:30 PM". The app header has "Logout", "Precip Report", and "Details" tabs. The CoCoRaHS logo is on the left, and the station information "OH-CN-6", "Wilmington 3.6 W", "US Units (in)", and "Precipitation Report" is on the right. The form includes fields for "Observation Date" (2019-02-19), "Observation Time" (19:00), and "Rain/Melted Snow" (NA). There is a "Trace Precip" toggle switch and "More Details" link. At the bottom are "Cancel" and "Submit" buttons. A bottom navigation bar has icons for "Report", "Multi-Day Report", "History", "Multi-Day History", and "Other".A screenshot of the CoCoRaHS app's "Detail View" screen. The status bar at the top shows "Verizon" and "11:23 AM". The header has "Back" and "Detail View" tabs. The form is divided into sections: "New Snow" with fields for "Accumulation (in/cm)" and "Melted Core (in/mm)", both set to "NA"; "Total Snow & Ice" with fields for "Depth Total (in/cm)" and "Melted Core (in/mm)", both set to "NA"; "Flooding Info" with a "not specified" field; and "Additional Notes" with an "optional notes" field.

CoCoRaHS QC

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

- Mistakes happen it is a part of life.
- If you think you made a mistake you can edit it on the website or via the app
- Please do not discouraged if you get an email from a CoCoRaHS coordinator asking for clarification on your report

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.



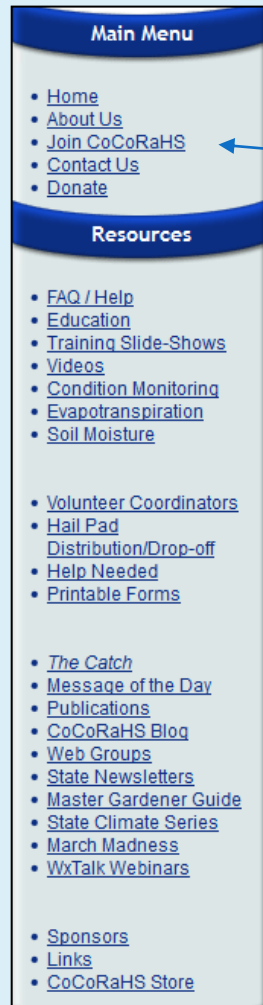
Resources found on left hand side of main page.



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



Join the CoCoRaHS Family



- Sign-up using the CoCoRaHS website www.cocorahs.org 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.
- Any questions please feel free to ask a CoCoRaHS Coordinator!

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.



*You are now ready to measure precipitation with
CoCoRaHS!*

Thank you for being a volunteer observer!



Ashley Novak

CoCoRaHS Coordinator

National Weather Service Wilmington, Ohio

Ashley.Novak@noaa.gov

